A Clinical Lecture

ON

A CASE OF FOREIGN BODY IMPACTED FOR FORTY-SIX DAYS IN THE LEFT BRONCHUS; OPERATION; RECOVERY.[1]

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GENTLEMEN,—Among the many casualties to which you may be summoned there is none which calls for more care, more thought or consideration, and often for more prompt and decided action, than the entrance of a foreign body into the air passages. Not only may the immediate consequences be dangerous and even fatal, but the subsequent and often remote contingencies may be of the gravest peril. The nature of the foreign body may have much to do with the results that follow its entrance into any part of the respiratory tract, and to enumerate a few of the many substances that have passed beyond the epiglottis and have been drawn downward in a sudden and ill-guarded inspiratory effort will be almost sufficient to illustrate some of the subsequent occurrences of such an accident. The more common amongst these are perhaps articles in the shape of food, which, being in the mouth, are drawn in by a strong and sudden inspiration while the epiglottis is off its guard, the glottis expanded and the larynx quiescent, such as portions of unmasticated food, plum and cherry stones, seeds, ears of grass, pieces of bone, &c. Teeth, artificial and natural, also have not infrequently been the cause of serious danger by becoming impacted in some portion of the tract, and other articles, such as shells, buttons, and pieces of money, which should not have been in the mouth at all, are usually drawn in during talking or laughing, or as the result of a sudden and unexpected blow or jerk which has caused the patient to gasp and thus draw the substance into the windpipe. Other articles, such as whistles, portions of trumpets, puff-darts, &c., have been drawn in by the inspiratory effort made preparatory to the expiratory one, which would produce sound from the former or effect the expulsion of the latter. Liquids, when bland and free from irritating properties, are often inhaled but are quickly and easily expelled; but blood or chloroform which may enter the trachea during operations may be followed by serious after results, the one by its coagulation in the bronchi and the other by its irritant properties. There are very many other articles which have been found to enter the air passages and give rise to trouble, but the enumeration that I have given will serve to illustrate what I wish you to regard. The consequences of such an accident will often call for such immediate action on your part that you have no time for other thought, but as often as not you may have to consider what will be the further changes in the nature of the substance or in what position it may possibly be arrested, either temporarily or permanently. For instance, portions of food, a pea, or a bean will be sure to swell, and thus become larger after a short sojourn in any part of the passage. On the other hand, a bullet or a shot, a bead or a coin, will not alter in consistence, but will by its weight fall to the lowest portion of the tube which its size will allow it to enter, and will not easily be induced to alter its position. Pieces of glass or china may by their angularity become fixed by penetrating to some extent the mucous membrane, or the point of a pin or needle or a puff-dart may pass through the trachea and cause ulceration of an important vessel. In many instances the foreign body, by completely obstructing the larynx or by setting up violent spasm, will cause almost immediate death; but in those cases where you have time to reflect you will have to consider, in the first place, whether there is a foreign body in the air passage at all, and, secondly, in what part of the tract it is lodged. With regard to the first question you must bear in mind that the substance may have entered the larynx and have been coughed up and ejected or even swallowed, although the irritation may continue and spasmodic cough may recur for some time afterwards. Again, it is not infrequent that substances, generally of the nature of food, so obstruct the pharynx or upper part of the œsophagus as to excite all the symptoms that would arise from their presence in the air passages, and the passing of a bougie down the œsophagus may be needed to determine this fact. Again, if the history is not distinct the symptoms may be due to an attack of acute laryngitis, or croup, or laryngismus, or the pressure of a tumour upon the recurrent laryngeal nerve. As regards the second question, you will be aided in your judgment of the probable situation in which the offending body may lie by an inspection of a duplicate. Thus, a pea or a cherry stone may by their lightness be carried up and down at each effort to cough, and at any moment may come into contact with the under surface of the vocal chords and excite a fatal spasm. Therefore, whenever possible obtain a duplicate, particularly if it should happen to be a gold coin, and consider the situation in which it is most likely to be arrested.

The symptoms which will make you suspect that there is really present in the air passages something in the nature of a foreign substance are violent and spasmodic cough, causing intense distress and a feeling of suffocation, more or less lividity of the face, and intense congestion of the veins of the neck. This may pass off and be succeeded by a period of ease of greater or less duration, to be succeeded again by the recurrent cough and dyspnœa. During this period you may have time to consider the positions in which the foreign body may most likely lie. In the larynx even large bodies, such as food or artificial teeth, may lie below the epiglottis, and after the first attack—which, however, is often fatal—may become impacted and allow time for further action. Smaller and lighter bodies may become fixed in the rima or ventricle of the larynx, where their pressure will generally be manifested by frequent attacks of spasm and by alteration of the voice, with a sense of discomfort and even of pain. Here the laryngoscope may afford you material aid. With the assistance of a solution of cocaine painted over the back of the tongue and pharynx a view may be obtained of the larynx, and the foreign body may be seen and in some instances extracted with proper forceps. But even if the body can be seen by this method it may often be necessary to perform tracheotomy, or even to divide the cricoid cartilage and extract the body either through the wound or through the mouth. Time, however, may not permit even of these deliberate proceedings, and to save life it may be necessary at once to perform laryngotomy and then to take measures for the removal of the irritant substance. When possible chloroform should be given on account of its allaying spasm and allowing of greater deliberation. But should the substance pass the vocal cords where will you expect that it may be arrested? This will depend greatly upon its nature. If it be heavy or of such a material that it swells by absorption of fluid it will sooner or later become fixed in some division of the bronchi, but if it be light it may lie for a time in the trachea, but shift its position by reason of coughing, and, coming in contact with the chords, will cause recurrent spasm and dyspnœa of a very serious nature. Here again tracheotomy is required at a very early period, and even if the substance cannot be extracted by forceps or expelled by the patient's own efforts, aided as these may be by inversion and succussion, there is no need to fear immediate danger, because, however severe the spasms, breathing can be safely carried on through the opening in the trachea. Sometimes from the nature of the substance it may become fixed in a part of the trachea, where it will rest for a long period without causing much distress. In one case that occurred at the Hospital for Sick Children a small piece of chicken bone forked at one end was found in the trachea below the vocal chords. In another child a piece of china was supposed to have been swallowed in August, 1894. Pain, cough, and vomiting of blood ensued immediately. She was taken to a hospital and an instrument passed, but nothing was found. She improved until several weeks later, when she was admitted to the Hospital for Sick Children on Nov. 2nd, and remained there for a month, but was readmitted a few days later on account of recurrence of a bad attack of dyspnœa. There was occasional stridor, but there were no obvious signs in the lungs. The history and the earlier symptoms pointed to the probability of something being impacted in the œsophagus, but upon examination by the laryngoscope it was thought that something could be seen posteriorly below the vocal

[1] This case was under the care of Dr. J. Mitchell Bruce and that of the lecturer.

chords, and on Dec. 18th I performed a high tracheotomy, when a triangular shaped piece of glass of pink colour and with sharp edges was at once expelled through the opening. The wound was sutured, and the child made a rapid recovery. Probably the case of the celebrated engineer Brunel is familiar to most of you, since it appears in every text-book, and it illustrates the fact that a coin such as a half-sovereign may lie in the trachea, but need not necessarily obstruct entirely the passage of air into the bronchi, and may act as a sort of valve, but may easily shift its position. In his case tracheotomy undoubtedly saved life, but the coin was eventually ejected from the mouth, where its effect upon the vocal chords could not produce suffocation, by reason of the lower opening into the trachea. Now the case which has induced me to bring this subject before you is an instance of the progress of a foreign body still further into the air passage, and the notes which I shall read you will give you a very good account of the symptoms which indicate, and which follow, such an event as the complete obstruction of a large bronchus, in this instance the left, by an adventitious substance. You know that the right bronchus is somewhat the larger of the two and also that the septum at the subdivision of the trachea is slightly to the left of the median line, and thus is explained the fact that foreign bodies more frequently pass into the right than into the left division of the trachea.

A healthy girl aged eight years and nine months was admitted under the care of Dr. Mitchell Bruce on Sept. 25th, 1894. Three weeks previously, whilst sucking a plum-stone which she had previously cracked, a portion of the stone fell back and, as was supposed, was swallowed. Immediately she complained of pain in her neck, and she was given a crust of bread with a view of removing it. Next day she was seen by a medical man who gave her some medicine and stood her on her head in hope of dislodging the stone. This is not a form of treatment which I should advise you to follow in similar cases unless you are perfectly prepared with all the apparatus necessary for tracheotomy. At that time, and since, she is stated to have complained of pain on the right side of the heart. Poultices were applied and constantly renewed with a view to relieve the pain, and the child was kept in bed for three weeks, during which time she took very little food. She was unable to sit up, but slept well, except when the cough troubled her, which it usually did about 4 A.M. On admission she appeared fairly well nourished. The temperature was 99·6° F. She had slight paroxysms of coughing both day and night. The left side of the chest was flattened, chiefly over the second and fifth ribs, and the movements of this side of the chest were deficient, the interspaces being sucked in during inspiration. Vocal fremitus was greatly diminished, especially below the level of the third rib. The apex beat was felt in the fifth interspace half an inch external to the nipple. The whole of the left side of the chest was dull excepting over the left of the sternum, and this dulness extended over the whole of the left lung posteriorly. The right side was hyper-resonant. On auscultation some breath sounds were heard under the left clavicle which were lost about the third interspace, and some feeble breath sounds were audible behind in the supra-scapular region, below which all was dull. On Oct. 4th, after consultation, it was decided to attempt the removal of the foreign body by operation. The patient, after struggling violently without ill effect, was anæsthetised with chloroform. The colour and breathing were good. Mr. Waterhouse made an incision in the mid-line from the cricoid cartilage down almost to the interclavicular notch. The trachea was exposed and a scalpel passed through between the third and fourth rings from below upwards well below the level of the isthmus. No mucus escaped, but a small amount of blood which entered the opening was expelled. In spite of the inversion of the patient, with vigorous stimulus to the back, the obstructing body remained *in situ*. A bent wire, with looped extremity downwards, was passed down the left bronchus, but without at first discovering any obstacle to its further passage. A double looped strand of silver wire was then passed, with the result that the object sought was distinctly felt. On each of several attempts muco-purulent secretion was brought away on the instrument, and a small quantity was expelled through the opening after each trial. On attempting to pass the little finger the child became distressed, the veins of the neck becoming distended and turgescent. The child was allowed to partially recover consciousness and the laryngeal reflex was then excited with a feather. The breathing became very spasmodic and violent, but without the effect of expelling the foreign body. At no time during the operation was the child greatly distressed. A large oval tracheotomy tube was tied in with tapes, and horsehair stitches above and below drew the skin incision together. During the ensuing night the child was in some distress, but she was relieved on substituting a Parker's tube, which was removed at intervals, but did not become clogged with mucus. During the next few days there was a good deal of cough and mucous expectoration mixed with some greenish-yellow pus, but in no great quantity. I saw the child in consultation with Dr. Bruce and Mr. Waterhouse, and it was decided to defer further treatment until the signs of bronchitis had subsided. On Oct. 19th the child seemed in a favourable condition for further proceedings. Chloroform and afterwards ether were administered. Inversion was first tried and cough was then excited by a feather passed down the trachea, but no effect was produced upon the position of the foreign body. A long probe, slightly bent, was then passed down the left bronchus, and a hard substance was distinctly felt at a distance of about five inches and a half from the lower margin of the tracheotomy wound. The wound was then held open by retractors, and a long pair of forceps, curved for the last inch of their length, was passed down the left bronchus, but the contact of the retractors making it difficult to be sure of the causation of any foreign body these were removed, and on again carefully introducing the forceps the hard substance was felt, the forceps carefully opened and closed, with the result that the foreign body was at once withdrawn through the wound. This was found to be a part (nearly half) of an irregularly broken plum-stone, which had been impacted with its apex downwards, and had been seized by the edge of the broader broken surface. The wound was left with only a guard wetted with carbolic lotion. During the following night there was but little cough, but a considerable quantity of sero-sanguineous fluid escaped from the edges of the wound. This continued for a day or two, but gradually diminished and very shortly ceased and the wound closed. The temperature never rose above the normal.

From experiments kindly made by Dr. Batten, registrar to the Hospital for Sick Children, Great Ormond-street, on the cadaver of a child about the same age and height it appeared that the body must have lodged, just as described in the case reported by Dr. Cheadle and Mr. T. Smith,[2] at that portion of the left bronchus where it bifurcates into its two main divisions and below the branch which passes to the upper portion of the left lung, and the surgical aspects of this case are almost identical with the one described by them except for the very much longer period during which the lung had been obstructed. In their case the operation was performed on the eighteenth day and in the case now described on the forty-sixth day after impaction, the ages of the two children being nearly identical and their recovery being equally complete and satisfactory. This is by no means the least interesting feature of the case. How to explain the circumstance that a large proportion of the right lung can remain for so long a period inert and entirely or almost entirely deprived of all functional activity, and then resume its functions apparently without drawback, are questions which must be left for a physiologist to solve.

RUPTURES OF THE PANCREAS: THEIR RELATION TO PANCREATIC CYSTS, WITH SOME REMARKS UPON TREATMENT.[1]

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INJURIES of the pancreas are rare. The size, shape, and anatomical position of this organ are in the main responsible for the comparative immunity which it enjoys. Being from 8 in. to 9 in. long, 1 in. broad, and somewhat strap-shaped, it lies transversely across the posterior abdominal wall at

[2] Transactions of the Royal Medical and Chirurgical Society, vol. lxxi.

[1] A paper read before the Medico-Chirurgical Society of Edinburgh on July 3rd, 1895.

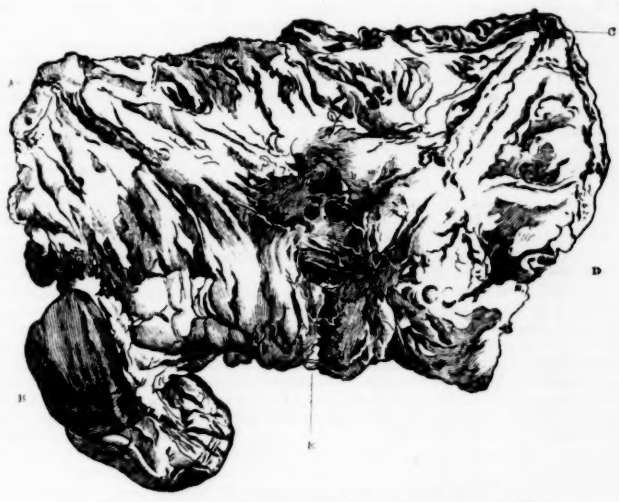
the level of the first lumbar vertebra, the tail being a little higher than the head. This corresponds pretty nearly to a transverse line drawn across the anterior abdominal wall about 3 in. above the umbilicus. It will thus be obvious that blows or injuries received in front must be directed over a very limited area indeed in order to reach it; and not only so, but their force must be expended more or less directly backwards and not obliquely upwards or downwards, and that, too, about the middle line, so as to crush the organ against the unyielding vertebral column. Not even all such blows will succeed in injuring the organ, for it is deeply placed, being protected in front by the anterior abdominal walls, the stomach, the lesser omental sac, and the ascending layer of the transverse mesocolon. Posteriorly it is also, though less effectually, protected by certain soft structures which to a certain extent act as buffers between it and the more rigid bony framework. These are from right to left the portal vein, the inferior vena cava, the two crura of the diaphragm on either side of the aorta, with the root of the superior mesenteric artery and the left suprarenal capsule and kidney. The bony framework of the chest completely protects it from violence directed from behind, and hence we find only instances of injury resulting from violence received in front. There is some reason to believe that it may be slightly injured in cases where the force has not been expended directly over it in the middle line, but towards the left side or even with a direction from below upwards; but in order to effect any serious laceration of the gland substance the violence must be inflicted not only in the middle line and directed backwards, but must be of very considerable severity. As the neighbouring organs—the liver, spleen, stomach (especially if full), and kidneys—are all more exposed, and thus more liable to suffer, it follows that such a rupture of the pancreas, uncomplicated with rupture in any other organ, is not likely to be met with. This is amply demonstrated by our experience of the cases which have unfortunately proved fatal. In these the injury to the gland substance has generally been great. Of the more fortunate cases we cannot speak so positively, as in the absence of an exploratory laparotomy we must remain more or less in the dark as to the precise nature of the lesions. I propose to consider the cases under two divisions: (1) those in which a fatal issue followed early upon the injury, and (2) the milder cases, in which the immediate results of the injury were apparently temporary or slight and quickly recovered from, and in which the main evidence of pancreatic involvement rests on the subsequent formation of a pancreatic cyst.

1.—CASES IN WHICH A FATAL ISSUE FOLLOWED EARLY UPON THE INJURY.

I know of only 9 cases altogether, of which 7 have been previously recorded. Of the other 2, one was received into the Royal Infirmary, Edinburgh, and the other, particulars of which have been kindly sent to me by Dr. Goldmann, into the Surgical Hospital at Freiburg in Baden. In only 2 of these 9 cases is it expressly mentioned that no other organ than the pancreas was injured. In the remaining 7 other serious injuries were present—viz., rupture of the lung in 1, of the spleen in another, of the duodenum in a third, and fracture of ribs, along with other internal injuries such as rupture of the liver, kidney, or spleen, in the other 4.

CASE 1.—A boy aged four years was playing one forenoon with some companions near his father's horse and cart in the infirmary grounds. In the temporary absence of the father they had been teasing the horse, when it suddenly kicked out, striking the lad violently in the pit of the stomach with its off hind foot. He fell forcibly against the wheel of the cart, but picked himself up, apparently more frightened than hurt, and with the help of his companions climbed up into the cart. His father returned shortly after and learned what had happened, but did not think seriously of it and kept the child with him until he went for his dinner. Shortly afterwards the boy was not looking well. He complained of a numbness in his left arm, which he was unable to move. His father, fearing that the arm was broken, carried him to the Royal Infirmary, Edinburgh, where he was admitted into Ward 9 under the care of Professor Annandale, to whose kindness I am indebted for permission to refer to the case. The left humerus was found to be fractured transversely in its lower third, but there were no signs of any other injury. The head, chest, and abdomen showed no bruises and pressure elicited no pain. Later in the afternoon the patient did not look so well. He was evidently suffering from shock and pain, and obscure symptoms of some abdominal mischief began to appear. His condition became more grave as the evening came on. The shock deepened towards collapse, and although it was fairly certain that there was a serious abdominal lesion the symptoms and signs were too indefinite and diffuse and the general condition too serious to render an exploratory laparotomy advisable. He gradually sank and died about ten hours from the time of receiving the blow.

Necropsy.—This was made by me about fourteen hours after death. The usual rigidity and lividity were observed. There was a bruised appearance around the lower part of the left upper arm, which showed the usual displacement of a fracture of the lower third of the humerus. There were no other marks of violence and no bruising or discolouration anywhere upon the body. On opening the abdomen a quantity of fluid, about a pint, was seen lying freely in the peritoneal cavity among the intestinal coils. It was clear and dark-brown in colour, and had a peculiarly pungent but not fetid odour. The general peritoneal surface showed a certain amount of injection and slight loss of gloss, but there was no hæmorrhage. On raising up the great omentum with the transverse colon nothing further was observed except the appearance of a very slight amount of yellowish fluid between the intestinal coils just below the transverse mesocolon. On gently displacing the more superficial coils it became more plentiful and was evidently specially located posteriorly in this position. This yellowish fluid had slightly granular, cheesy-looking material in it closely resembling the contents usually found in the stomach when it contains partially digested milk. It suggested a rupture of the duodenum in this position, and I presently found one close to the termination of the third part. The amount of the escaped contents showed that this part of the gut had been fairly full at the time of the injury. This would favour its rupture. Indeed, I think it may safely be said that subcutaneous rupture of the collapsed bowel really never occurs. I have seen it follow a perforating wound, but not a contusion. It will be remembered that this is one of the commonest sites of



Showing the rupture in the pancreas and its peritoneal covering. The parts are in the natural position, as seen from the front, looking slightly downwards. A, Splenic flexure of colon. B, Spleen. C, Hepatic flexure of colon. D, Points to a tear in the ascending layer of the transverse mesocolon in a line with E. E, Rupture in the pancreas.

intestinal rupture, for here the gut is more or less fixed, and rests upon the vertebral column. The tear in the present case was through the whole wall for about two-thirds of its circumference, the peritoneal coat still being intact in the other third. There was another small tear about three-quarters of an inch long in the mesentery of the jejunum a short distance lower down. There was very little hæmorrhage. The margins of the peritoneum in the neighbourhood of the tears showed a little infiltration with blood-clot, and there were a few petechiæ in the transverse mesocolon, but nothing further. The transverse colon was then displaced downwards and the pancreas exposed. The ascending layer of the transverse mesocolon and the underlying pancreas were both found to be torn. The rupture in the gland was a little less extensive than that in the mesentery. It ran vertically from above downwards with a slight obliquity to the right, passing through its whole thickness at its upper border, but through a part only towards the lower border. The main duct and the splenic vessels were uninjured. The line of rupture was almost directly over the aorta and on being continued through the transverse mesocolon became continuous with that in the duodenum. This was probably the line of chief impact of the horse's hoof, the organs having been crushed between it and the vertebral column. Its position in the pancreas about the junction of the right with the middle third is well seen in the preceding engraving, which is from a photograph. The ruptured ends had separated a little from one another and were infiltrated to a slight degree only with blood. There was practically no blood in the lesser omental sac, which, except for the tear already mentioned in its posterior wall, presented a perfectly normal appearance. Blood had effused from the rupture, as the retro-peritoneal cellular tissues contained a certain quantity of diffusely spread blood-clot. It might have amounted altogether to about three ounces. It passed mainly to the left above the pancreas towards the spleen, reaching its hilum and infiltrating also a little downwards. It did not pass behind the pancreas except just at the tail, where it spread itself slightly over the suprarenal capsule. The amount of hæmorrhage thus appeared to be remarkably small for such an extensive injury to the gland, and, moreover, it lay behind and not within the lesser omental sac, into which the gaping wound in the gland directly opened. When it is remembered how closely the peritoneum covers the anterior surface of the gland it would naturally be expected that the hæmorrhage from an anterior rupture would flow into the lesser omental sac. On other grounds also I was prepared to find some fluid within this sac, as many of the ducts of the gland must have been torn across, and it is at least probable that some pancreatic juice was secreted, for it will be remembered that the unfortunate little patient lived for about ten hours after the accident. The foramen of Winslow was patent, and some of the fluid in the general peritoneal cavity may have thus come from the lesser sac. All the other abdominal organs were uninjured. The stomach contained a few ounces of material similar to that seen in the duodenum. Had it been distended it might not so readily have escaped injury. I was much interested also to find that the aorta had not suffered in any way. It was clear that it lay directly in the line of the impact and presumably had been suddenly and violently pressed against the vertebral column. It would not, I think, have been surprising to find some injury of the external or middle coat. The liver and kidneys were markedly pale, as were also the lungs, in part suggesting a large rather than a small hæmorrhage. This was certainly not present. The bowel contents only showed some blood-stained mucus for about eighteen inches below the site of rupture. The cranial sinuses were congested, but the brain and its membranes were healthy.

The special points of interest in the case are the nature of the injury, the comparative absence of serious signs for some time after its infliction, their subsequent rapid onset and gravity, the absence of any marks of violence upon the abdominal wall and of pain, the large amount of fluid in the peritoneal cavity, the severity of the rupture in the pancreas, and the smallness in amount and the anatomical position of the hæmorrhage. If the shock and collapse had been due to the injury acting directly upon the solar plexus or more indirectly through the nerves of the pancreas and peritoneum their onset would have been expected to have been practically immediate, and one is therefore led to suggest that they are referable rather to the changes occurring in the peritoneal cavity subsequently to the injury. The dark-coloured fluid, about one pint in amount, had probably not come from the ruptured gut, as it was different in character from that found in the neighbourhood of the tear. There remains then only the inflamed peritoneum or the torn pancreas to explain its presence. It is decidedly unusual to find such a large quantity of fluid associated with a simple early peritonitis, and it is thus quite as probable that the pancreas was responsible for some of it, at any rate. It is probable that pancreatic secretion has, under certain circumstances, a peculiarly irritating effect upon the peritoneum, and its gradual and steady escape into the general peritoneal cavity would largely explain the phenomena observed in the present case. The other points of interest will be considered in conjunction with the other cases.

CASE 2.[2]—A young man received a violent blow upon the abdomen from the fall of a heavy packing-case upon him. It is believed that the corner of the case struck him in the epigastric region. On his admission to hospital his chief symptoms pointed to abdominal hæmorrhage and intestinal obstruction. A tumour gradually formed in the mesogastrium resembling that formed by a pancreatic cyst. There were no marks of bruising externally upon the skin of the abdominal wall. The general condition of the patient was too grave to permit of laparotomy. He died a few hours after the accident. At the necropsy the pancreas was found to be transversely ruptured. Profuse hæmorrhage had occurred into the cavity of the lesser omentum and given rise to the pseudo tumour in the mesogastrium. The spleen was also lacerated. The other organs were uninjured.

CASE 3.[3]—A native of India, a male about fifty years of age, had been subjected to a somewhat curious assault. He was tied up in a sort of lithotomy position, his hands being first tied together, and his knees then forced within the area of the tied arms and secured there by a long lath passing from one side to the other through the space between the anterior aspect of the elbow and the posterior aspect of the knee. His assailant then beat him violently with a shoe on the exposed buttocks, genitals, and abdomen, and also kicked him once or twice. On being released he walked home, a distance of about one mile, supported between two persons. He was then admitted to hospital and died about eighteen hours afterwards. At the necropsy it was found that the pancreas was ruptured vertically from above downwards at its right extremity for about half its breadth. A small clot of blood was found near this, and the rest of the organ looked congested and showed extensive extravasation of blood into its substance. The abdominal cavity contained about six ounces of blood-stained fluid, and the peritoneum in places, especially the transverse mesocolon, showed considerable injection. No other lesion was found and there was no external sign of injury.

CASE 4.[4]—An adult was run over in the street. The pancreas was so crushed in its middle as to be divided into two parts opposite the spinal column. There was but little other sign of injury to the abdominal viscera.

CASE 5.[5]—A man thirty-three years of age was run over in the street by a light car going very rapidly at the time. He showed no external signs of injury. His symptoms pointed to severe internal hæmorrhage, and he died in less than two hours after the accident. The pancreas was literally smashed and embedded in coagulated blood. The spleen and kidney were also ruptured, and there was a slight tear in the under surface of the liver. Several ribs were broken.

CASE 6.[6]—An intoxicated woman was knocked down by a stage coach, which, however, did not pass over her, and she died a few hours afterwards from internal hæmorrhage. The pancreas was transversely torn across. There were other internal injuries, the liver being lacerated and several ribs broken.

CASE 7.[7]—In this case the pancreas and lung were both injured.

CASE 8.[8]—A woman was run over by a coach and died within a few hours. The pancreas was completely torn in two and embedded in a large mass of semi-fluid blood. Several ribs were fractured and the liver was ruptured.

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[2] Goldmann.
[3] Jaun: Indian Annals of Medical Science, vol. iii., 1855, p. 721.
[4] Wilks and Moxon: Pathological Anatomy, third edition, p. 491.
[5] Cooper: THE LANCET, Dec. 21st, 1839.
[6] Travers: THE LANCET, June 23rd, 1827.
[7] Wandelleben: General-Bericht des Königlich-Rheinischen Medicinischen Collegiums, 1842, Coblenz, 1845, SS. 120-123; and Wochenschrift für die Gesammte Heilkunde, Berlin, 1845, SS. 729-732.
[8] Störck: Annus Medicus, 1836, p. 244.

CASE 9.[9]—A lad showed rupture of the pancreas and other severe injuries, which speedily proved fatal.

Edler,[10] the latest writer on this subject, could in 1887 find only 3 cases of this lesion—viz., those of Cooper, Travers, and Kuhlenkampff.[11] I have not followed him in including the last-named case, as it afforded no evidence that it was a case in point. Kuhlenkampff himself did not claim that the pancreas had been ruptured or lacerated. He believed that the severe blows which the patient had received upon the epigastric region had caused an inflammation of the pancreas, which, through resulting obstruction of the main duct, had given rise to the mesogastric cyst, which he successfully opened and drained. Senn,[12] writing a year earlier, mentioned 4 genuine cases—viz., those of Cooper, Travers, Störck, and Le Gros Clark. I have been able to add 7 cases to the 2 genuine ones of Edler and 5 to those of Senn; but even the increased knowledge thus afforded is still sufficiently meagre to make us exercise much caution in forming any general conclusions. In at least 3 of the cases the injury was caused by the patients being run over by a vehicle, and it is interesting to note that in almost the only surgical text-book in which I have found any reference to rupture of the pancreas, that of Jamain,[13] it is said that this very rare lesion is usually thus caused. A violent and sudden blow is responsible for 3 more cases.

Symptoms and signs.—Shock and collapse would seem to be the most prominent. They are usually brought about immediately by internal hæmorrhage, as in Cases 2, 5, 6, 8, and 9, but may be due to other and less obvious causes, as in Cases 1 and 3, where they developed only after a considerable interval. They are probably due more to the complications than to the pancreas. In no case have the symptoms pointed to the pancreas as the main seat of lesion. The absence of any bruising, ecchymosis, or discolouration of the skin of the abdomen, or any sign of external violence is important and not a little surprising. Its bearing upon medico-legal cases is obvious. Serious criminal assaults may be made, as in Case 3, without any outward or visible sign of injury. A similar absence is noted in Cases 1, 2, and 5, and I have several times observed it in other cases of ruptured viscera. It may almost be said to be the rule and not the exception. It may occur also in the thorax, as in the case[14] of a child run over by a cart, in which the lung was torn without any fracture of the ribs or injury to the wall of the thorax.

Diagnosis.—This is practically impossible without laparotomy. The nature of the violence, its exact site of impact and direction may make the lesion probable. It can only be verified by laparotomy. I have satisfied myself that upon the cadaver at all events the anterior surface of the pancreas can be thoroughly explored by the finger through a vertical incision about three inches long in the middle line anteriorly, or preferably a little to its left in the epigastric region. If an electric lamp be placed in the interior of a Fergusson's speculum both the pancreas and its covering peritoneum can be scrutinised.

Prognosis.—The foregoing cases were all rapidly fatal. The cause of death was internal hæmorrhage in at least five of the cases—viz., Cases 2, 5, 6, 8, and 9; but this result was in all probability more due to the complications than to the lesion in the pancreas. In Cases 1 and 3 the hæmorrhage was small in amount, and not one of the other parenchymatous organs was ruptured. It is then at least probable that the hæmorrhage from a rupture of the pancreas alone will not be severe unless the splenic artery or vein be ruptured. In themselves they need not be fatal.

Treatment.—It has already been shown that the lesion in the pancreas is rarely the only one present, and, further, that the rupture in the gland does not declare itself by any definite signs or symptoms. It follows, then, that ordinary expectant treatment (rest, ice, &c.) alone can be followed, except in the cases where an exploratory laparotomy is performed. If this be done and a rupture be discovered it should at once be treated. The hæmorrhage may be arrested by pressure and the ruptured ends brought close together by comparatively superficial sutures passing through little more than the peritoneal covering of the gland. This covering adheres so closely to the gland, without the intervention of any fatty or other tissue, that it is easy to bring the separated ends of the gland together by traction exerted alone upon the peritoneum. This procedure is, however, open to the objection that blood or pancreatic juice may collect between the ends and cause their separation again, and lead, perhaps, to cyst formation or other trouble. Senn,[15] from his experiments on animals, recommends that the ends of the ruptured gland be separately ligatured previously to such suturing. This has the advantage of effectually arresting the hæmorrhage and the outpouring of the pancreatic juices, and, further, the close approximation of the ends favours the rapid establishment of the nutrient vascular supply. He would first remove the necrosed portions of the gland. He found that ruptures treated in this way quickly healed and that there was no danger to be apprehended from the distal part of the gland, as all such physiologically separated portions of gland underwent simple atrophy and in no case led to cyst formations.

2. MILDER CASES.

It has already been seen that such evidence as can be brought forward tends to show that ruptures of the pancreas need not in themselves prove fatal, and it is quite conceivable that many such ruptures may occur, and probably have done so, in varying degree of severity in cases of abdominal injury which have been entirely recovered from. Perhaps large ruptures such as occurred in Case 1 may lead to such an extensive outpouring of pancreatic secretion, mixed with blood-clot and fragments of devitalised pancreatic tissue, that its escape through the foramen of Winslow into the general peritoneal cavity may set up a general chemical and perhaps also organismal peritonitis. Evidence on such a point is lacking, however, and it is more probable that the lesion in the gland is followed by inflammation which results in nothing more than a certain amount of cicatricial contraction, and the patient recovers entirely without the subsequent occurrence of any other trouble. Cases have been recorded in which even extensive cicatrisation of the gland existed without any suspicion of its presence during life. It is obvious, however, that other possibilities exist. There is room for other results between those two extremes. The lesion in the gland may be followed by an inflammation, not restricted to the gland itself, but spreading gradually to other tissues in its neighbourhood, and leading, perhaps long afterwards, to subsequent trouble. This supposition is further strengthened by the fact that many cases of injury received in the epigastric region have been followed, sometimes long afterwards, by the appearance of a cyst in this region, and the relation which the so-called *pancreatic cysts* bear to ruptures of the gland itself is a most interesting one. Increasing attention has been of late years paid to the subject of these cysts, and a traumatic origin has been assigned to a large proportion of the reported cases. These number, so far as I can find, altogether seventeen, and I have arranged them in chronological order in the table on the following page.

The history of the injury is most definite in these cases; moreover, the formation of the epigastric tumour followed sufficiently soon after it as in itself to be presumptive of the relationship being cause and effect. The earliest appeared ten days after and the latest eight years. In the latter it may reasonably be doubted if there was any connexion between them. It is in a measure, however, supported by two of the cases being delayed for three years and another for one year. In six the interval varied between two and four months, and in the other five between two and five weeks. It will be noticed that nine of them were more or less directly related to falls, six to blows upon the abdomen, and only two to being run over by a vehicle. It is a somewhat curious fact that all but one occurred in males, and this is probably to be accounted for by the greater liability of the male sex to injury. It might justly be brought forward, however, as an additional argument in favour of the causal nature of the injury. Granting, however, that the injury was the primary cause of the formation of the cyst, we have still to show that that injury involved the pancreas. The evidence

[9] Le Gros Clark: Lectures on the Principles of Surgical Diagnosis, 1870, p. 298.

[10] Die traumatischen Verletzungen der parenchymatösen Unterleibsorgane (Leber, Milz, Pancreas, Nieren). Archiv für Klinische Chirurgie, 1887.

[11] Ein Fall von Pancreasfistel. Berliner Klinische Wochenschrift, Feb. 13th, No. 7, 1882, p. 102.

[12] The International Journal of Medical Science, vol. xcii., 1886, p. 423.

[13] Manuel de Pathologie et de Chirurgie Clinique, 1870, second edition, tome ii., p. 493.

[14] Wilks and Moxon, loc. cit., p. 324.

[15] Loc. cit.

on this point is fairly satisfactory in several of the cases, for the fluid obtained on aspiration or evacuation of the cysts, on being submitted to analysis, gave the reactions characteristic of the pancreatic juice. In other cases the contents failed to give these reactions, and this may point to an origin altogether independent of the pancreas. It is known, however, that great changes may occur in the composition of the contents of such cysts, especially if they are of long standing, and it may be that, the connexion with the pancreas having been cut off, the pancreatic character of the fluid will be gradually lost. We are thus led to look for evidence along other lines. The most conclusive of all—viz., that derived from post-mortem examination—is of very little avail here, as of the seventeen cases just quoted only one ended fatally. The others all recovered after the cyst had been incised and drained. The fatal one—viz., No. 14 of the table—was reported by Lloyd. An enormous encysted hæmatoma was found situated behind the stomach. It contained three or four pints of dark blood containing old coagula. The folds of the lesser omentum were so altered that it was hardly possible to say how they entered into the formation of the wall of the sac. No special examination of the pancreas for injury was made. This case affords us but little if any help, and we are therefore compelled to fall back upon the domain of hypothesis and conjecture in seeking for an explanation. Kuhlenkampff [16] suggested that the injury might cause an inflammation of the gland substance, which might lead to closure of the main duct and a consequent retention cyst. Senn [17] held the same view until he found from his experiments on animals that very little distension followed obliteration of the main duct, and that, in short, any part of the gland physiologically separated from the main exit duct underwent simple atrophy. He then suggested that these cysts might have more than one mode of origin and that the hæmorrhage into them might be variously explained. He gave three main hypotheses: (1) hæmorrhage into a pre-existing pancreatic cyst; (2) parenchymatous hæmorrhage producing a cyst, followed by hæmorrhage into the cyst wall; and (3) that the hæmorrhagic cyst may originate in a dilatation of one of the vessels of the pancreas. Now the first of these does not get over the difficulty of the first formation of the cyst, and the third, while it may be said to be possible, must be regarded as rare. The second view is at once the most obvious and probable. It

Table showing the Lapse of Time between the Injury of the Pancreatic Gland and the Appearance of the Tumour.

No.	Year.	Sex.	Age.	Nature of injury.	Time elapsing between the injury and the appearance of tumour.	Reference.
1	1882	M.	39	A number of heavy blows upon the abdomen. Patient believed that they were received about the umbilicus in a direction from below upwards.	About two months.	Kuhlenkampff: Berliner Klinische Wochenschrift, 1882, No. 7, S. 102.
2	1885	M.	19	Patient fell from waggon, striking the ground on the left side of the abdomen, a heavy keg falling at the same time upon his back.	About five weeks.	Senn: American Journal of the Medical Sciences, New Series, vol. xc., p. 18.
3	1887	M.	46	Thrown from a waggon.	About eight years.	Kuster: Deutsche Medicinische Wochenschrift, Leipzig, vol. xiii., 1887, p. 189.
4	1888	M.	8	A fall from a horse, bruising the abdomen.	About three weeks.	Fenger: Chicago Medical Journal, February, 1888).
5	1888	M.	40	A crush between two railway waggons.	About one year.	Steele: Ibid., April, 1888.
6	1888	M.	Young	Assault by roughs.	—	Treiberg Karkov: Inaugural Dissertation, 1888 (vide Annals of Surgery, November, 1888).
7	1890	M.	25	A fall upon the left side of abdomen.	About four weeks.	Karewsky: Ibid., No. 46, 1890.
8	1890	M.	58	An injury to the left costal margin.	About three months.	Ibid.
9	1890	M.	13	The hind wheel of a lorry carrying coal passed over the upper part of his abdomen.	About two months and a half.	Cathcart: Edinburgh Medical Journal, July, 1890, and Transactions of the Medico-Chirurgical Society, Edinburgh, 1889-90, p. 73.
10	1890	F.	28	A fall from a great height.	About three years.	Riegner: Berliner Klinische Wochenschrift, No. 42, 1890.
11	1891	M.	21	A kick in the abdomen	About three years.	Pitt and Jacobson: Transactions of the Royal Medical and Chirurgical Society, 1891, p. 455.
12	1891	M.	50	In lifting a heavy weight he felt something give way in the epigastric region. Shortly afterwards he had a severe fall, which "knocked his breath out."	About three or four months after began to feel pain, and later a tumour appeared.	Richardson: Boston Medical and Surgical Journal, 1891, p. 111.
13	1892	M.	38	Horse threw and stamped upon him, striking him over the upper part of the abdomen on the left side.	About three weeks.	Littlewood: THE LANCET, April 16th, 1892, and the Transactions of the Royal Medical and Chirurgical Society, 1891–92, p. 25.
14	1892	M.	20	Knocked down by a horse at a race meeting.	About three months and a half.	Lloyd: Brit. Med. Jour., vol. ii., 1892, p. 1051.
15	1892	M.	27	Thrown upon the floor and kept there for a time.	About ten days. Patient said he noticed it at once.	Ibid.
16	1894	M.	2	Run over by the wheel of a cab.	About three weeks.	J. L. Thomas: THE LANCET, March 31st, 1894.
17	1894	M.	17	Crushed between a locomotive and a truck, the buffer striking his abdomen.	About three months and a half.	W. H. Brown: THE LANCET, Jan. 6th, 1894.

[16] Loc. cit.
[17] Loc. cit., vol. xc., 1885, p. 34.

was further elaborated by Cathcart,[18] who puts it as follows: "The injury causes a laceration of the gland. This is followed by extravasation of blood, and with this is mixed the pancreatic secretion from the torn ducts. Not only is a constantly increasing fluid thus added to the original hæmatoma, but the collection of fluid probably becomes irritating in character. It will thus tend to excite the formation of a capsule around it, and by chemical irritation and tension would gradually increase in size." This view of the causation and mode of origin of these so-called pancreatic cysts is not only the most natural but also the most probable which has yet been propounded. It is so obvious that it has doubtless occurred independently to other observers. Indeed, it did so to myself, and I find that Jordan Lloyd[19] has had a similar experience. He says (apparently unaware of Senn and Cathcart having previously suggested it): "The secretions of the torn gland may be poured into the lesser omental sac with the blood, and that even if pure pancreatic juice be not irritating to the peritoneum a mixture of pancreatic juice and devitalised blood-clot may have a very different effect, and that chemical changes of a digestive kind may then be started, which may irritate the serous lining of the sac and cause it to pour out its secretions and thus gradually distend its cavity." Now, obvious and simple as this explanation is, it must be remembered that it is hypothetical and must be carefully tested before it can be accepted as being satisfactory. Before accepting it as being the mode of origin of these pancreatic cysts we must exclude the possibility of other and neighbouring structures acting as primary factors in their formation. This cannot be done, for it is found that many cases of similar cysts in this region arise apparently spontaneously. No connexion with the pancreas may be suspected until an analysis of the cyst contents suggests it. Such cases are much more numerous than those apparently of traumatic origin. Some of them may originate in retention cysts, as seemed to be the case in a woman aged thirty-five referred to by Sharkey.[20] A tumour said to have been in existence for from twelve to fifteen years was found in the left hypochondrium. It was remarkably mobile. On opening the abdomen it shot out of the wound, dragging with it the tail of the pancreas. On enucleating the cyst the pancreas bled very freely. It is at least improbable, however, that even the majority have a similar origin, and inquiry must be made if no other way is open which would still allow them to retain a connexion with the pancreas. Such a way is, perhaps, to be found in the spontaneous hæmorrhages which occasionally arise from the pancreas or suprarenal bodies. It is quite well known that hæmorrhage may take place spontaneously into and around the pancreas. It has been met with not infrequently in varying degrees of severity and standing. If recent the infiltrated parts have the dark colour of ordinary venous blood-clot, and if old they have a brown or slaty colour. Such hæmorrhages may even speedily prove fatal. Zenker[21] describes three such cases occurring in strong, healthy men and Draper[22] five somewhat similar cases. Challand,[23] Prince,[24] Gussenbauer,[25] and others have also discussed the subject. Minor cases are doubtless still more common and may result in the formation of a blood cyst. If the hæmorrhage ruptures any of the pancreatic ducts there may be a mixture of pancreatic juice as well, and hence the mode of origin of such cysts may come to closely simulate traumatic ones. Störck[26] and Parsons[27] each record a case which somewhat supports this contention. In both a sanguineous cyst connected with the pancreas was present, and the tissue of the gland was infiltrated with hæmorrhage that had taken place into its substance. The parenchymatous hæmorrhage may have been the first thing here, and may have led to the formation of the cyst, which increased by further hæmorrhage taking place from its wall. It is of course possible, though not so probable, that the cyst preceded the hæmorrhage. In some cases the hæmorrhage is more manifest in the neighbourhood of the pancreas than within the organ itself. Harris[28] mentions a case of sudden death in an alcoholic patient where the hæmorrhage was into the adjoining subjacent peritoneal tissue as well as into the pancreas; and Biggs[29] another case of a man who fell dead on coming out of a beer saloon in which he had taken a few glasses of beer. There was hæmorrhage around the pancreas and a number of minute hæmorrhages within it. I will not discuss the causes of such spontaneous hæmorrhages. The question is an obscure one. Signs of acute inflammation of the gland substance were found in some, while in others the gland was apparently quite healthy. It is not necessary, however, for the blood to come from the pancreas. It may come from the suprarenal. Virchow[30] describes a form of acute hæmorrhagic inflammation of the suprarenal capsules, and several cases of large spontaneous hæmorrhages into and around these organs have been put on record. Further, there is evidence that hæmorrhage may be found in the neighbourhood of the pancreas without having any apparent connexion with either of these glands. Rolleston[31] mentions the case of a man aged thirty in which hæmorrhage was found around the pancreas, the source of which could not be determined. It is apparent, then, that the first step in the formation of a cyst may arise in a variety of ways, and it is conceivable that such a cyst in the course of its gradual increase and extension may come to acquire a connexion with the pancreas, though it originally possessed none. Fischer[32] suggests "that a pancreatic cyst may originate as a blood effusion in the neighbourhood of the gland, it being supposed that the tension of the sanguineous effusion may cause atrophy of part of the gland substance and escape of fluid from opened ducts." He cites as a probable instance a case recorded by Merigot de Treigny,[33] where a sanguineous cyst was found adherent to the pancreas, which was atrophied at the position of contact. This anatomical connexion is certainly suggestive, but it is far from conclusive, as it is capable of explanation by other and perhaps more probable modes of origin.

So far these observations have been restricted to hæmorrhages from the region of the pancreas, but in considering the possibilities of cyst formation in this region other conditions of etiological importance should be remembered. Blood has not been present in all these cysts, even in all the traumatic ones, and as serous cysts arise in connexion with the spleen, liver, suprarenals, and even lesser omentum, it is obvious that this latter class must be taken into account when dealing with the origin of epigastric cysts. Hydronephrosis, echinococcus, retro-peritoneal dermoid cysts, or even ovarian cysts, have to be included also. The mere mentioning of most of these possible origins is all that is required for my present purpose. Their occurrence is well enough established, and the only one requiring further consideration is the lesser omentum. Its surface extent is the greatest of all the structures in the epigastric region, and if cysts can arise in it independently of any other structure it is at once obvious what a frequent source of origin it may become. It will facilitate this investigation if I first consider whether either traumatic or spontaneous cysts may arise from the peritoneum at a distance from the pancreas. I find that there is fair evidence on the subject. Godlee[34] has recorded three cases of cysts following upon injury whose origin was very possibly peritoneal. In the first, a girl aged four years, the cyst had formed on the right side of the abdomen about three weeks after she had been run over by a cab. He believed that this cyst was primarily renal, due possibly to a ruptured ureter. In the second, a man twenty-three years of age, the cyst formed on the left side and was aspirated about four weeks after the injury. In the third, a boy aged seven, the cyst formed first on the left side, and later, about eleven months after the accident, spread to the epigastric region. It was incised. These three patients recovered, and there was no special evidence, in the latter two at any rate, to connect them with any particular organ. Again, in the case recorded by Brown[35] there was reason to believe that a similar peritoneal cyst, separate from and independent of the pancreatic one,

[18] Transactions of the Medico-Chirurgical Society of Edinburgh, 1889-90, p. 80.
[19] Brit. Med. Jour., vol. ii. 1892, p. 1053.
[20] THE LANCET, Dec. 3rd, 1892.
[21] Hämorrhagie: Tageblatt der 47. Naturforscherversammlung. Breslau, 1874.
[22] Transactions of the Association of American Physicians, 1886, pp. 243-251.
[23] Bulletins de la Société Médicale de la Suisse Romande, 1877.
[24] Boston Medical and Surgical Journal, vol. cvii., 1882, p. 55.
[25] Wiener Medicinische Wochenschrift, No. 13, 1883. Medical Times, vol. i. 1883.
[26] Archives Générales de Paris, Mars et Juillet, 1836.
[27] Brit. Med. Jour., 1857.
[28] Boston Medical and Surgical Journal, 1889, vol. cxxi., p. 608.
[29] New York Medical Record, 1890, vol. xxxvii., p. 362.
[30] Die Krankheiten der Geschwülste, ii.
[31] Transactions of the Pathological Society of London, 1883, p. 71.
[32] Guy's Hospital Reports, 1892, p. 328.
[33] Bulletins de la Société Anatomique, Paris, 1885.
[34] Transactions of the Medical Society of London, 1887, p. 210.
[35] Vide No. 17 of the table.

was present as the result of an earlier injury. The evidence in support of similar peritoneal cysts arising spontaneously is still more conclusive. Terrier[36] gives the case of a man aged thirty-four years who had suffered from attacks of colic and diarrhœa for about five months previously to the detection of a swelling in the hypogastric region. This was tapped and 450 grammes of blood-stained fluid withdrawn. The cyst refilled and formed a rounded swelling reaching from the pubis to the umbilicus and to within two fingers' breadth of the iliac spines on either side. Laparotomy was performed and the cyst removed; it was about the size of a fœtal head and was apparently connected with the mesentery. It contained what looked like pure blood and its walls were of some thickness and were coated internally with fibrin. The patient recovered. Frentzel[37] records another case in a woman aged twenty where the cyst, about the size of a child's head, was situated about the middle of the right side and was very movable. It was found to lie between the layers of the mesentery and to contain sero-sanguineous fluid. The patient recovered. Simon[38] found a cyst of the great omentum in a man who died from Asiatic cholera. It was adherent above to the greater curvature of the stomach. It had thin walls and contained granular, rust-coloured blood coagula. The arteries and veins of the omentum were normal. With the exception of a few small ulcers in the colon the organs of the body appeared to be healthy.

It thus, I think, becomes clear that both traumatic and spontaneous cysts may arise from the peritoneum, and hence many of those recorded as present in the mesogastric region may be fairly enough referred to the lesser omentum as their source of origin. Thus Sutherland[39] mentions the case of a girl aged eight who was run over by a cab. Three weeks later a swelling appeared in the epigastrium, which disappeared after aspiration about five weeks after the injury. Richet[40] relates a case in a man aged forty-two who had been knocked down by an omnibus and about six months later developed a cyst in the epigastric and left hypochondriac regions. He died from peritonitis ensuing after injection of the cyst, after aspiration, with a weak cauterising fluid. The lesser omentum was occupied by a cyst limited above by the liver, below by the pancreas, and in front chiefly by the small omentum, but partly by the stomach. All the surrounding organs were healthy. Rendu,[41] Guillois,[42] and Méry[43] have recorded somewhat similar traumatic cases, in none of which could any connexion with any of the surrounding organs be detected at the necropsy, or any satisfactory explanation of the origin of the cyst be given. I might in a like manner cite instances of similar cysts of a spontaneous origin. Pomier[44] opened and drained one in the left hypochondrium. It contained 1500 grammes of purely serous fluid. It is unnecessary to multiply instances, nor is it incumbent upon me at present to explain the origin of such cysts. Rouiller[45] suggests that a sclerosis of the peritoneum of alcoholic origin first causes hæmorrhage and then a cyst; and Fischer[46] that the lesion is nervous, probably having its origin in the solar plexus. The latter holds that the hæmorrhage is not really situated within the peritoneal cavity, but between the omental or mesenteric layers. Be this as it may, however, it is obvious that they come to simulate pancreatic cysts more closely than any others, and if the record of pancreatic cysts be scrutinised it will be seen that many of them, both traumatic and spontaneous, have no real right to their name, as they had probably no connexion with the pancreas. It is not generally appreciated how many the fallacies are. Not only must we exclude the cysts of the various surrounding organs—e.g., the spleen, kidney, supra-renal, and liver—but the great body of peritoneal or retro-peritoneal cysts have also to be taken into account before it can be asserted that any cyst is of pancreatic origin. Chemical analysis and microscopic examination will indeed afford assistance in many cases, and they are of the greatest value when they give positive evidence, but when they fail to do so, as is often the case, we are not entitled thereby to exclude a pancreatic origin, as the contents of the cysts may become much altered in the course of time. Indeed, in the absence of some such direct physiological or anatomical evidence, we have no right to either assert or deny a connexion with the pancreas. In any such case the possibilities are many, and we are not entitled to do more than suggest the likelihood of its being of pancreatic origin. Its greater frequency makes this source the most probable, but it would perhaps be better not to use the term "pancreatic" as descriptive of any such doubtful cyst. The term "epigastric" is fairly distinctive and has the advantage of in no way begging the question. For prognostic and therapeutical purposes a perfectly accurate diagnosis is not, after all, so much of a desideratum, as all cases, whether pancreatic or not, seem to be equally amenable to treatment.

Treatment.—Wherever there is a collection of fluid about whose boundaries and connexions there may be some doubt, the natural tendency is to evacuate the fluid with the least possible disturbance of parts. Hence it is seen that the first procedure adopted was an emptying of the cyst by means of aspiration. Experience has shown, however, that this is both ineffectual and dangerous, as the cyst gradually refills. Attempts to secure obliteration of the cyst by means of the injection of iodine, &c., have been somewhat disastrous. A fatal peritonitis has resulted more than once—indeed, the simple aspiration itself has been followed by somewhat similar serious consequences, brought about doubtless by the rupture of the cyst walls, when thin, and the sudden escape of the contents into the peritoneal cavity. Aspiration has thus been abandoned in favour of laparotomy, which is the favourite method of treatment at the present day. The cyst is brought forward to the anterior abdominal wall and is incised and emptied. Drainage is secured by means of a pancreatic fistula, which discharges for a variable time and then heals. It was the method followed in all the seventeen cases recorded in the foregoing table of traumatic pancreatic cysts, in all of which, except one, it was successful. It has been followed with like success in many other cases. Krecke[47] says that of twenty-seven cases treated by section and drainage all recovered; and of six cases treated by dissecting out the cyst three died. The advisability of trying to dissect out the cyst is very doubtful. Excision may be easy in some cases, but it will be difficult in most, and experience does not favour its recommendation. The method of anterior incision and drainage, notwithstanding its success, is not altogether perfect. It has actually failed to cure in a few cases, and other objections may be urged against it. It is much more suitable for the somewhat movable cysts which come forward to the anterior abdominal wall. These are generally broader anteriorly than posteriorly, and are thus readily opened from the front. It is not nearly so suitable for that other division which are somewhat sessile, broader posteriorly than anteriorly and much less movable. They are not easily reached by an anterior incision, and, moreover, it is by no means easy to bring the wall forward of such a cyst to the anterior incision and thus to secure its safe evacuation. In addition, I have to urge the obvious disadvantage of the anterior incision, alike for men and women, in so far as it interferes with the natural usefulness of the abdominal walls, and provides for a drainage of the most imperfect character, allowing of a cure only after a more or less protracted period of time. Further, the possibility of the pancreatic fistula becoming permanent must not be entirely denied. Senn, in his experiments, found that it never occurred, but actual experience in the human subject does not quite bear this out. Gould,[48] indeed, mentions a case in which not only did the pancreatic fistula remain permanent, but malignant disease appeared around it. It appears to me, therefore, not only reasonable, but most advisable, to seek for some other method of reaching these cysts free from these objections. Cathcart, Littlewood, and others have spoken of the ease with which a counter-opening could be made posteriorly in these cases, and it occurred to me that they might be primarily reached and drained by a posterior operation. I thereupon verified this suggestion many times upon the cadaver. I found it much easier than I expected to cut down upon the tail of the pancreas and lesser omental sac. A vertical incision about three inches long is made at the outer border of the left rectus, beginning above at the twelfth rib. After cutting through the skin

[36] Comptes Rendus de la Société de Chirurgie, 1890, p. 383.
[37] Deutsche Zeitschrift für Chirurgie, 1892, and La Semaine Médicale, May 25th, 1892.
[38] Bulletins de la Société Anatomique, 1858, p. 30.
[39] THE LANCET, Dec. 10th, 1892.
[40] L'Union Médicale, 1877, tome 44, p. 82.
[41] Bulletins de la Société Anatomique, 1880, p. 120.
[42] Ibid., 1889, p. 596.
[43] Ibid., 1885, p. 39.
[44] Nouvelles Archives d'Obstétrique et de Gynécologie, October, 1892.
[45] Les Kystes hématiques du Péritoine. Thèse de Paris, 1885.
[46] Loc. cit.
[47] Münchener Medicinische Wochenschrift, Nos. 25 and 26, 1892; and Epitome, Brit. Med. Jour., July 23rd, 1892.
[48] Discussion upon a paper by the late Mr. Hulke read at the Clinical Society of London on Nov. 25th, 1892. Vide THE LANCET, Dec. 3rd, 1892.

and fascia the thin fibres of the latissimus dorsi are first recognised, and then the strong fascia at the outer border of the rectus. This is incised and the upper border of the quadratus lumborum is next seen running downwards and outwards. The finger is inserted above it and feels for the posterior surface of the kidney through the fat and cellular tissue. It then defines the position of the renal vessels. The tail of the pancreas and the postero-lateral wall of the lesser omental sac lie just above and inside them, and by inserting a probe I was able to enter the cavity of this sac, either through the mesocolon below the lower border of the pancreas or through the posterior peritoneum above this gland, at will, according to the obliquity upwards given to the probe. In no case was the suprarenal capsule or any other structure in the neighbourhood injured. When the lesser omental sac was distended with fluid fluctuation could be distinctly felt by the exploring finger working upwards above the renal vessels, and the fluid could be evacuated with ease by means of a drainage-tube made to enter the sac with the help of a director and a pair of dressing forceps. This procedure will be found to be quite as easy in cases of pancreatic cysts and probably of others in this neighbourhood. The cyst wall may be thick and thus a little difficult to penetrate, but that need not cause much trouble, while the long existent distension will have brought the cyst within more easy reach. It may even extend downwards below the line of the renal vessels, and thus be reached by the surgeon whether he goes above or below these structures. This method of reaching these cysts from behind was adopted by Mr. Cotterill with complete success in a case now under his care in the wards of the Royal Infirmary, Edinburgh. He entered the sac below the renal vessels. The patient is doing well. Others have adopted a posterior incision after an anterior one has failed. Thus Gould mentioned that in a case where the cyst was fixed and could not be brought to the surface, with a finger in the cyst he cut down behind below the twelfth rib and drained it posteriorly. The fistula rapidly closed up. A better proof could hardly be given of the advantages of the posterior incision. He would doubtless have easily reached the cyst had he tried the posterior incision at first. I would strongly advocate this method of procedure, not only because of its ease, but because of the advantages of a posterior over an anterior incision, and of the more perfect drainage and much more rapid convalescence and cure which it promises. Even if it were to fail to reach the cyst, it would in no way prejudice the success of an anterior exploration, and would, moreover, even in such a case, allow of the rapid establishment of posterior drainage.

Edinburgh.

A CASE OF ULCERATIVE ENDOCARDITIS ASSOCIATED WITH COARCTATION OF THE AORTA.

BY THOS. B. FLINT, L.R.C.P. LOND., M.R.C.S. ENG.,
SENIOR HOUSE PHYSICIAN TO THE MANCHESTER ROYAL INFIRMARY.

A MAN aged twenty-one came to the accident-room of the Manchester Royal Infirmary on May 20th, 1895, complaining of hæmoptysis, which had come on two days previously. The quantity of blood brought up was small. Phthisis was the first thing thought of. On examining his chest, however, no physical signs of that disease were manifest, but a double murmur heard best over the aortic area was discovered. Both systolic and diastolic murmurs were very loud and entirely replaced the heart sounds. On feeling the pulse it was found to be distinctly a "Corrigan's," and on rubbing the skin over the forehead capillary pulsation was well seen. He was admitted as an in-patient under the care of Dr. Steell. The next day a more detailed examination was made. The patient was a well-nourished man, but somewhat anæmic. On inspection it was noticed that there was marked pulsation in the supra-sternal notch and in the neck, especially the upper part. The apex beat was in the sixth left intercostal space and just outside the nipple line. On percussion the cardiac dulness extended three-quarters of an inch to the right of the mid-sternal line and four inches and a half to the left of it at a level of about one inch above the upper margin of the liver. Above, the dulness did not extend higher than the third rib. On auscultation the loud double murmur was heard as before in all four areas of the heart, replacing the sounds. When listening at the lower angle of the left scapula both murmurs could be plainly heard; but higher up, just below the scapular spine, the systolic murmur was alone heard and was remarkably loud. On looking more closely along the surface of this area where the murmur was heard the loudest it was noticed to be pulsating, and numerous tortuous arteries, some of considerable size, could be seen beating in it, and on laying the hand over it a slight thrill could be felt. The pulsating area occupied practically the subspinous fossa. On the right side a similar condition existed, but it was not so well defined as on the left. The pupils were equal, and both radial arteries gave the same tracing—a typical aortic regurgitation one. As regards the other organs, the lungs were apparently normal. The sputum was examined several times for tubercle bacilli with negative results. The liver was slightly enlarged and projected about a finger's breadth below the costal margin. The spleen was also enlarged. The urine was normal. As regards his previous history, the patient stated that he had never suffered from rheumatism or chorea, that his work was not heavy, that he had never noticed that he was short of breath, and had never had any swelling of the legs and feet. From the date of admission to the end of the second week of June the patient progressed very well. The pulse averaged about 100, the respiration was about 18 per minute, and the temperature in the morning averaged about 98·2° F. and in the evening about 100·2°. The hæmoptysis almost disappeared. During the third week of June, although the patient did not complain, it was noticed that he was getting paler and his appetite began to fail. The pulse averaged 120, the respiration 20, and the temperature in the morning 99° and in the evening 100°. On June 24th the patient complained of pain in his right side, and his temperature rose in the evening to 101·2°. The next day he coughed up a considerable quantity of blood from the lungs. He perspired profusely and vomited during the day about three pints of undigested food. There was some dulness at the base of the right lung. A distinct *bruit de galop* was heard for the first time over the cardiac region. The superficial arteries could be seen pulsating much more plainly than before, and the urine contained some albumin. He gradually became worse, his pulse-rate increasing to 132 per minute, his respiration to 54, and his temperature to 101°, and he died on the 29th from heart failure.

Necropsy.—The brain and spinal cord were not examined. The pericardium was considerably increased in extent and there was a slight increase in the amount of pericardial fluid. The heart was greatly enlarged downwards and outwards, giving to the organ almost a bovine character. The weight was 1 lb. 5 oz. The right auricle was slightly dilated. The tricuspid orifice was slightly dilated; the segments were normal. The right ventricle was dilated and greatly hypertrophied. The pulmonary artery was apparently normal. The left auricle was dilated and hypertrophied. The mitral orifice was dilated and admitted three fingers; the segments were healthy. The left ventricle was dilated and greatly hypertrophied. The aortic segments were almost completely destroyed by masses of recent ulcerative endocarditic vegetations. Immediately above the valves a diverticulum, fully one inch in depth, projected as a polypoid growth into the cavity of the right auricle. About one inch beyond the origin of the left subclavian artery—i.e., at the junction of the transverse and descending aortas—the aorta became extremely narrowed and only admitted a small probe. The contraction extended over a very inconsiderable space and was sharply defined both at its commencement and at its termination. The ductus arteriosus was obliterated and terminated at the concave portion of the aorta about one-sixteenth of an inch above its contraction. The descending thoracic and abdominal aortas were of about normal size, but the iliac and femoral vessels were smaller than usual. Coming off from the descending aorta immediately below the constriction there was an artery as large as the brachial; this proved to be the first aortic intercostal. The posterior scapular arteries were much enlarged and tortuous and anastomosed with the upper intercostal branches close to the spine. These vessels formed the pulsating area described above. The internal mammary arteries were also much enlarged. The liver was enlarged. The spleen was

enlarged considerably. The kidneys were healthy. The left lung was normal. The lower lobe of the right lung showed pneumonic consolidation and was in the stage of red hepatisation. There was a small amount of fluid in the right pleural cavity.

Remarks.—The condition of coarctation of the aorta, although rare, is by no means unique; I have, however, never seen a case recorded in which the patient was also the subject of ulcerative endocarditis. An interesting point in the case was the close resemblance it bore to pulmonary phthisis, the temperature, down in the morning and up in the evening, being very suggestive of this, but, of course, there was the presence of the valve lesion to account for it. The patient and his mother (a very intelligent woman) were certain that he had never had rheumatic fever or chorea, nor had he suffered from any other serious ailment previously. He had never undergone severe physical exertion, and his work had always been light. Then, again, the enlargement of the spleen is worthy of note, as is also the albuminuria which came on shortly before death. The temperature, too, was always more or less raised during the whole of his stay in hospital.

Manchester.

A RARE FORM OF SKIN DISEASE FOLLOWING THE EXTERNAL APPLICATION OF IODINE LINIMENT.

By D. ROBERTSON DOBIE, M.D. EDIN.

IN THE LANCET of Sept. 29th, 1894, appeared two very interesting articles, the one upon an epidemic skin disease occurring in public institutions, and the other upon the treatment of small-pox, two very dissimilar subjects to allude to. I am induced from a study of those to think the following case will be of interest and importance on the one hand to medical practitioners who devote their particular attention to skin affections, and on the other hand to medical officers of health, who may at any moment be consulted as to the best means of checking the spread of disease amongst a community. Dr. Henderson and I were at first in a dilemma as to what was the nature of a most suspicious eruption which made its appearance in a case under treatment in the Coldstream Cottage Hospital. The following are the history and notes of the case, and I am of opinion that, although not by any means unique, it is of sufficient rarity to make it worth recording.

On Sept. 13th, 1894, I was summoned to visit a man aged twenty-four years who had been ill for about four days with headache, lassitude, and pain in the back. I found the patient with a high temperature and double pneumonia. I ordered his immediate removal to the Coldstream Cottage Hospital, where a more thorough and complete examination as to his condition was made. His previous history may be shortly noted. After his apprenticeship he enlisted and was sent to Egypt, and when abroad he became subject to epileptic fits and was discharged on that account. He came home and found employment in various ways, feeling well and able for any amount of work. Three weeks before the present illness he went to harvest work, and continued this employment four days, when he felt unwell. He worked when he felt able, and went to bed when he felt worse. He finally gave up and came home, but did not send for medical advice until the date of admission, when he was suffering from pneumonia and symptoms of advanced renal disease. On each succeeding day the temperature averaged from 98·4° to 99° F., with an evening rise not exceeding 100·8°. The urine was highly coloured with bile, and thickly charged with albumin, fully two-thirds of a test-tube quantity. The amount ranged from seventy to eighty ounces. The usual treatment necessary for such cases was carried out with great care and his condition every day carefully noted. The consolidation of the lung became most marked, and in every respect his condition might safely be said to be improving. It is unnecessary to go into every detail, but what I wish particularly to point out in the course of the treatment was the painting of the back with dilute iodine liniment, equal in strength to the Edinburgh tincture of iodine. This was applied morning and evening from Sept. 14th to the 18th. On the 19th the patient's face was completely covered with a papular, pustular, vesicular eruption; in some parts, more particularly in the region of the ear, a bullous eruption. These pustules all over the face were discrete and confluent, forming large encrusted sores, with swelling of the eyelids, lips, nose, and ears. A copious discharge from the nostrils accompanied this. The face was increased enormously in size. At the same time a perfectly different, purely papular eruption made its appearance upon the back of the hands, wrists, and forearms. The patient experienced severe smarting and heat in the face; in other respects there was no change in his condition. My colleague and myself were at first not a little alarmed at this sudden development, more particularly when we discovered, on making inquiries, that he had been sleeping during the time he was at the farm in a bed adjoining two strangers, labourers from the county of Durham. The period of incubation of small-pox would not tally with his account of the dates, and on consulting Dr. Radcliffe Crocker's able work on "Skin Diseases" and Plate 33 of the Sydenham Society "Atlas of Skin Diseases" I discovered that we had a case of iodide eruption. The eruption on the face in the course of four days gradually died away, leaving healthy epidermis and no scars, the scabs peeling off rapidly. The papules on the hands continued very prominent. On careful examination it was easily seen that the papilloma was a distinct epithelial growth upwards. On puncture a clear viscid fluid escaped; no pus was found in any of them. There was a well-marked red ring round the base of each, and not one had the slightest appearance of subsiding. On Sept. 27th the patient complained to the nurse in attendance of headache and chilliness all over his body. His temperature was 99·4° at 8 o'clock in the morning. At 12 o'clock he was seized with sickness, nausea,

and vomiting. A severe rigor set in, and the temperature had risen to 101°. The pulse was rapid and tumultuous. The patient became cyanosed. Respirations were rapid and stertorous. He became rapidly unconscious, with twitching of the hands and frothing at the mouth and nose. Profuse perspiration ushered in a violent convulsion. He had ten similar attacks following each other in rapid succession. These seizures were typical uræmic convulsions. Pilocarpine and venesection, baths, chloroform, &c., were all tried to alleviate his suffering and distress without success, and he died at 5.45 P.M. the same day.

Remarks.—The difficulty which surrounded the diagnosis of this most interesting case at a moment's notice will be evident at once, and several of my colleagues who were quite familiar with the early appearance of variola were startled at the eruption on the hands, wrists, and forearms, and admitted that it was an impossibility to distinguish the difference without minute examination and inspection of the fluid on puncture of the papule and a close analysis of the history of the case. There are several cases of a like nature recorded, after the internal administration of iodide of potassium, but I am unable to find any mention made of a typical, and what I should say in this case an aggravated, iodide rash, induced by the local application of the liniment to the skin of the back, which throughout remained in a healthy, unbroken condition. For a full description of the appearance and for the pathology and minute anatomy of the disease I beg to refer my readers to the account given at page 300 of Dr. Crocker's work on Skin Diseases, second edition.

Coldstream, N.B.

ROUGH NOTES ON REMEDIES.[1]

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No. IV.

MERCURY IN HEART DISEASE.

I HAVE been somewhat disappointed in the discussion at Edinburgh on cardiac stimulants, inasmuch as I see hardly any reference was made to the value of mercury in cases of heart disease. I fear that our views on this subject have not advanced of late, and the mind of the profession has not grasped the idea that mercury has a value in heart disease far beyond what may be termed its "alterative" action. The administration of this drug in cardiac dropsy and in all cases of passive congestion of the pulmonary and portal systems is as old as the hills, and we old-fashioned physicians know well enough that thirty or forty years ago no one thought of treating these conditions except by a mercurial pill followed by a saline or jalap purgative and a diuretic mixture containing digitalis. Then came the days when the diuretic mixture was changed for one of muriate or ammonio-citrate of iron with digitalis, and some of us will remember the remarkable papers of Dr. Handfield Jones on the value of this combination. Now we have come to the days of arsenic, strychnia, iodide of potassium, and a host of cardiac stimulants, together with rest and cardiac gymnastics. I expect that in all cases our remedies do but assist nature in bringing about healthy compensatory changes by preventing degeneration of the muscles and vessels of the heart and main bloodvessels. Repeated observation has convinced me that mercury possesses a value far beyond the supposed alterative nature of its action—not that it fails to relieve congested vessels by drainage or osmosis, for doubtless this lays the foundation of its further action on the heart itself, and it would fail to relieve the heart did it not eliminate biliary and other effete matter from the blood and tissues of the liver and portal system, for instance; but when due allowance has been made for these primary effects there remains strong evidence that it tells upon the heart itself. Its special benefits are exercised in cases of dilated and hypertrophied heart. By means of it the "thready," weak, rapid, and irregular pulse is made full, soft, regular, and slow, with manifest relief of such symptoms as dyspnœa, pectoral weight and tightness, and sensations of faintness. The "angina sine dolore" is often marvellously relieved and removed by two or three grains of blue pill three times a day, and the severe forms of "angina pectoris" not unfrequently disappear under its influence. While the nitrites, nitroglycerine, &c., afford temporary relief, this remedy is much more permanent in its effects. Nor need I say that to give digitalis a fair chance it is absolutely necessary to pave its way by preliminary doses of mercury and to foster its action by repeated doses. Many of the cases where digitalis, &c., fail, or seem to fail by supposed accumulation depend on this, that we are giving the digitalis without the blue pill or calomel, and it often falls to the lot of the consultant to make a great hit by inserting the mercurial into the previous treatment. Much more true is this of iron and digitalis combined. We see a patient with engorged vessels and labouring heart taking iron and digitalis much to the detriment and not to the benefit of the case—each dose is but adding fuel to the fire—energising the heart in its futile attempts to drive the blood through the engorged vascular system, and thus exhausting the organ in its hopeless struggle. We change all this by frequently repeated doses of mercury; we drain the portal system, we exosmose the water from the general vascular system, we suck up dropsical accumulations, and by pushing the drug we get hold of the heart itself and produce the slow, soft, regular, and effectual pulse, giving the digitalis or strophanthus a fair chance to come in as cardiac tonics; and at last we complete the circle by arriving at the point whence we departed with the patient in a very different condition, and we can give the iron and digitalis now with impunity—nay, with immense benefit. Let the following case speak for itself, and its quotation is the more apt as the patient came from being under the care of an eminent Edinburgh physician in the very condition I have described—viz., a dilated and hypertrophied heart goaded to excess in a useless effort by iron and digitalis.

A case of dilated and hypertrophied heart treated by 20,000 grains of blue pill; recovery from advanced cardiac dropsy followed by ten years of good health.—The patient, a hard-working man, was a Scotchman, and had all the talent, physique, and energy peculiar to his race. He gradually developed symptoms of valvular disease and dilated heart when about forty-eight years of age. He went to Edinburgh and was under treatment there for several weeks. At last he was sent home with the assurance that nothing more could be done for him. My friend, Dr. Wilson of Wallsend, was summoned to see him, and he called me in consultation on the case. We found the patient in the following condition. He was propped up in bed. His countenance was anxious, his eyes seemed to protrude from their sockets, and his face was bathed in perspiration, with a livid colour of the lips and skin. His breathing was shallow, frequent, and difficult, accompanied by a constant hacking and ineffectual cough. His pulse was hardly perceptible, irregular, and thready. The heart's action was tumultuous and irregular, the cardiac sounds were almost inaudible, and a distant murmur could be heard with both sounds at both the right and the left apex. No cardiac impulses could be felt except a wavy movement at the epigastrium. The liver was enlarged, and the abdominal cavity was distended with fluid, as were also the lower extremities and the scrotum. The pleural cavities were also occupied to a considerable extent by fluid effusion. We determined to abandon the usual cardiac stimulants and gave him two or three grains of blue pill thrice a day, and at the end of two days we gave him a smart purge of jalap. Greatly encouraged by the result, we pushed the blue pill (two to three grains three times a day) for a week or more, and during that time a steady relief of all the symptoms ensued. The countenance became placid, the tongue (before dry and brown) became moist, and the pulse more regular, full, and soft; the dropsical accumulations gradually receded, and the breathing resumed a normal character. Now was the time for digitalis—always best given on a falling tide in dropsy—and doubtless the patient owed much of his rapid recovery to the temporary and occasional use of that drug; but the staple of the treatment was the steady use of blue pill, now gradually diminished to two pills a day, and finally to a five-grain pill at bed time. To sum up the results, the man felt himself to be quite free from all his troubles in six weeks, at which date I met him in the Newcastle railway station and had the pleasure of presenting

[1] Nos. I., II., and III. of this series were published in THE LANCET of Feb. 25th and Nov. 4th, 1893, and Sept. 21st, 1895, respectively.

my convalescent to an extra-mural teacher of eminence from Edinburgh. From this time the patient resumed his duties and became a useful and active member of society.

Now the point of interest in this case is this—and I want to emphasise it—that during the next ten years the patient stuck to his blue pill every night with few intermissions, and declared that whenever he did leave it off for a few nights his heart began to trouble him and his breathing became difficult. As will be seen from the post-mortem notes, this nightly dose was in some mysterious way enabling a heart, massive with disease, to discharge its duties in such a way as to make its owner feel quite well. During the ten or eleven years of his subsequent life, Dr. Wilson calculates, he took 20,000 grains of blue pill; it never salivated him, it neither purged nor nauseated him, and it never gave his breath a touch of fetor. At last, however, his old symptoms returned, the machinery was worn out, and he died chiefly from the pressure of abdominal fluid on his enormous heart. I regret that such a case should be so roughly handled, it deserves a more accurate and detailed description, and I trust Dr. Wilson will some day give his details of it. My son, Professor George Murray, and Dr. Wilson made a post-mortem examination, of which these are the notes:—"On opening the thorax the heart was seen to be enormously enlarged, and the space occupied by it measured eight inches across and eight inches from above downwards. The lungs were displaced backwards and compressed by the enlarged heart. Heart: The right auricle was very much dilated, almost to the size of a man's fist. The walls were thickened and the muscular tissue hypertrophied. The auriculo-ventricular orifice was very much increased in size and readily admitted eight fingers at once. The tricuspid valves were much thickened and opaque. The right ventricle was much dilated and the walls thin. The left auricle was much dilated, the walls thick, and the endocardium opaque. In one part of the wall of the auricle there were two bars of calcified muscular tissue united by a crossbar of the same substance. The auriculo-ventricular opening was much constricted and hardly admitted the tip of the index-finger. The mitral valves were adherent, so that there was only a small opening like a button-hole between them. The valves were thick and rigid, but not calcified. The left ventricle was dilated, but its capacity was only about one-half that of the right ventricle. The walls were not much increased in thickness. Abdomen: The peritoneal cavity contained a considerable amount of clear fluid. The spleen showed a dense white patch of scar tissue one-fourth of an inch deep in the centre—evidently the site of a very old infarction. The surface of the liver was nodular; on section it showed dense strands of connective tissue of advanced cirrhosis."

Remarks.—I need not say that to rescue a man from the jaws of death and give him ten or eleven years of fairly good health confers on any drug a reputation. Its potency is established. We therefore ask, How does it act? Is it a cardiac tonic, stimulant, alterative, or what? Or does it act on the secondary apparatus of the circulation and the blood itself by reducing the resistance of the vessels, diminishing the volume of blood, and altering its fibrinity so as to make it circulate more freely? I think it does all these things, and at the same time it soothes the heart by purifying the blood of effete accumulations.

Newcastle-on-Tyne.

THE PREPARATION OF ANTIRABIC SERUM AND THE METHOD OF DETERMINING ITS STRENGTH.

BY PROFESSOR GUY TIZZONI AND DR. EUGENE CENTANNI.

(Concluded from page 731.)

IV.—THE ANTIRABIC SERUM AS A PROTECTIVE.

BEARING in mind the more exact methods established for the standardising of the dose of the serum and of the virus, we have proceeded to test the power of our serum by various methods of experiment. We began by seeking to determine what dose of serum injected under the skin prior to infection would be capable of preventing the action of the virus. These experiments have no direct or important bearing upon practice, inasmuch as, rabies being a disease of rare occurrence, we cannot speak of its treatment in the healthy individual before there has been any contagion whatever. From the scientific side, however, these experiments are of very great importance, and constitute the starting-point of other researches and other tests of the efficacy of the serum; one knows, in fact, that the efficacy of the serum may vary according to the time which intervenes between its introduction and the moment of infection. We can inject the serum a long time before infection—weeks or months—with the aim of determining what is the duration of the immunity conferred by it—a question which has a certain importance, as we know that one of the points which we wish to establish between the immunity given by the serum and that given by means of vaccine is whether the first has a much shorter duration; we have, therefore, in the course of these experiments dwelt on the durations of the immunity, and shall deal with them in a separate paper. The serum can also be introduced a short time before infection; this is done very frequently and is adapted to solve certain important questions. We have carried out a more extended series of experiments of this kind in order to determine the following points. 1. The relation existing between the quantity of serum introduced prophylactically and that necessary to be introduced at various periods after the occurrence of infection. These doses are very different, and form an ascending series, starting from the moment at which the infection has taken place; in the various infections this rise in dose does not proceed with equal intensity, but the degree of this increase gives us an idea of the degree of infection, and hence of the greater or lesser difficulty of curing it, according to its intensity. As regards the curative use of the antirabic serum we shall see the importance of establishing the relation between the curative and the preventive doses. 2. The relation between the different methods of injection of the serum, with a view to hastening the absorption and lessening the loss of active material. One knows that serum may be introduced by way of the peritoneum as well as by way of the veins. We have adopted a new method, the immense advantage of which over the subcutaneous method will presently be seen. 3. A means of determining the dose necessary to counteract the infection made with the canine virus and one made with the fixed virus, and hence, indirectly, to return once more to the comparison of the two viruses. 4. A method of estimating the strength of the serum.

It has already been seen how by the method of subcutaneous injection we sought to determine the best type of vaccination. We have, however, abandoned this in our latest experiments in favour of more simple and exact methods. In the following table (Table XIII.) we have collected several groups of experiments made with serum upon sheep and after various kinds of vaccinations, the serum having the power of typical serum. This serum has been introduced twenty-four hours before infection, it being injected at one single time if a small quantity was being used, and at three or four times when the quantities were much larger. Only in the latter event did the animal suffer in any way from the injection, either from a little local œdema or from some diminution of the body weight. The infection was always made beneath the dura mater, the canine virus and the fixed virus being used. (See Table XIII.)

Passing in review the experiments made with the canine virus, we find that, in presence of an infecting unit introduced into the brain, our typical serum having the value of 1 to 25,000—that is, 0·04 c.cm. (corresponding to at least a drop or to three milligrammes dry product)—is sufficient to protect a rabbit of the weight of one kilogramme; against the fixed virus the dose must be raised considerably, this being safe up to 1 in 100, according to which a rabbit of the weight of one killogramme demands at least 10 c.cm. This dose is to that with the canine virus as 250 to 1, whence one sees the great increase of activity which the virus has undergone by repeated introductions into the rabbit—an increase which appears the greater if the limit of dilution of each of these is not considered and they are taken at equal volumes. And since the fixed virus at an equal volume contains 200 more infecting units than the canine virus of mean strength (the relation between the dilution 4 in 1000 and 1 in 50), so it may be deduced that the fixed virus is 50,000 times stronger than the canine, or at least, that to protect against the infection practised with a given

weight of the one needs 50,000 times the dose which protects against an equal weight of the other. Of the other lessons which this table furnishes we shall speak later, when it will be possible to deduce them by comparison with data obtained by other methods of experiment.

V.—THE ANTIRABIC SERUM AS A CURATIVE AGENT.

From the preceding experiments it is evident that the antirabic serum, like any other protective serum, succeeded, not only in preventing the malady from invading the still intact organism, but also in cutting it short after the infection—it may be during the period of incubation, or even when the first rabid phenomena have been manifested. We were then limited to establishing the possibility of the fact, reserving to later researches the determination of the degree as we have already observed when treating of the rabbit, in the lesion of a large nervous trunk, and in the introduction of virus sufficiently concentrated, represents a form of infection certainly graver than the somewhat small bite usually met with in man. We draw particular attention to the table of the curative experiments at varying periods after infection. The serum used came from two sheep; that of one had the strength of the typical serum, that of the other had a power eight times less $\left(\frac{ST}{8}\right)$; but the calculations all referred to the typical serum. The infection was made in the usual manner—by way of the nerve with a dilution of 1 in 20, and by way of the brain with a dilution of 1 in 30, always injecting 0·13 gramme per kilogramme. Nothwithstanding that in

TABLE XIII.—*Infection with Virus "da strada."*

Source of the serum.	Number of register.	Weight of rabbit in kilos.	Infecting units injected under dura mater.	Quantity of serum injected under the skin twenty-four hours before infection. Absolute.	Quantity of serum injected under the skin twenty-four hours before infection. Relative.	Result of Experiment.
SHEEP III., IV., AND V. First vaccination	19	2·060	2½	c.cm. 0·08	1 : 25,000	Died on the 20th day.
	18	1·520	2½	,, 0·15	1 : 10,090	Lived.
	32	1·500	1	,, 0·06	1 : 25,000	,,
	34	1·410	1	,, 0·057	1 : 25,000	,,
	35	1·560	½ (1 : 100)	,, 0·062	1 : 25,000	,,
	147	1·170	1	,, 0·33	1 : 3,600	,,
	148	1·610	1	,, 0·33	1 : 5,000	,,
	98	1·350	1	,, 0·500	1 : 270	,,
	99	1·370	2	,, 0·500	1 : 270	Died on the 20th day.
	100	1·390	1	,, 0·500	1 : 280	Lived.
SHEEP I. Fourth vaccination	40	1·700	2½	,, 0·007	1 : 25,000	,,
SHEEP I. Fourth vaccination	140	1·960	1	,, 0·008	1 : 25,000	,,
	141	1·730	1	,, 0·007	1 : 25,000	,,
	144	2·200	1	,, 0·200	1 : 1,100	,,
	145	2·140	1	,, 0·200	1 : 1,070	,,
	117	1·640	1	,, 0·300	1 : 330	,,
	118	1·500	1	,, 0·500	1 : 300	,,
	119	1·320	1	,, 0·510	1 : 360	,,
Infection with "Fixed" Virus.						
SHEEP III., IV., AND V. First vaccination	164	2·040	1	c.cm. 10·0	1 : 204	Lived.
	172	1·570	1	,, 10·0	1 : 157	,,
	163	2·360	1	,, 20·0	1 : 118	Died on the 44th day.
	173	1·620	1	,, 15·0	1 : 108	Lived.
	158	1·730	2	,, 18·0	1 : 96	Died on the 8th day.
SHEEP I. Fourth vaccination	181	1·670	1	,, 5·0	1 : 334	Lived.
	182	1·670	1	,, 10·0	1 : 167	Died on the 10th day.
	183	1·740	1	,, 20·0	1 : 87	Lived.
	162	1·130	1	,, 20·0	1 : 56	,,
SHEEP I. AND IV. Fifth and third vaccination	292	1·530	1	c.cm. 4·5	1 : 510	Died on the 7th day.
	291	1·380	1	,, 8·0	1 : 166	Died on the 10th day.
	294	1·500	1	,, 13·5	1 : 111	Lived.
	295	2·000	1	,, 18·0	1 : 111	,,
	290	1·600	1	,, 19·2	1 : 83	,,
	296	1·390	1	,, 16·8	1 : 83	,,
	297	1·620	1	,, 19·5	1 : 83	,,

of this action and the relation of the various quantities of serum which might safely act during the various periods of the disease. It is not necessary to demonstrate how much attention should be given to this part of the argument, since the antirabic treatment in man being necessarily undertaken after the smallest bite the means to cut short rabies after infection and with the least quantity of serum must crown all our researches. In making this series of experiments we have principally drawn attention to the demands which the serum must satisfy in its application to man. We were therefore confined to the employment of the canine virus as the material of infection; besides experiments with subdural infection we have carried out a considerable number with infection in the sciatic nerve, which, making the infection every care, as above stated, was taken, it must not be taken for granted that in any given series of animals the multiplication of the virus proceeds directly parallel in all, and that they must at the same period of incubation always neutralise equal doses of virus. One not infrequently encounters in some one animal a somewhat more rapid development of the disease, so that, for instance, what for one animal is the tenth day represents for another the twelfth or fourteenth. (See Table XIV.)

The results displayed in Table XIV. have a marvellous regularity; a more exact application of mathematics to the measurement of complete biological phenomena could not certainly be desired. If any doubt should remain as to the efficacy and proportion of the action of the serum

this table would serve of itself alone to completely dispel it. It furnishes us with data of immense value for the application of the serum to man when bitten. We are able to establish a comparison between the preventive dose and the curative dose, and also between the curative doses themselves at various periods after the infection. We will first consider the experiments with infection in the sciatic nerve. The preventive dose established by us for the serum employed in Table XIII. is 1 in 25,000; now it is seen that no sooner do we pass from the preventive dose to the curative dose than a considerable difference arises. On the first day after the infection a dose of serum as much as five times greater is required, not, indeed, to save the animal, but merely to postpone its death. On the second day the insufficiency of that dose is made up for by another dose three times greater, and we see that to obtain positive results we must carry the dose of serum up to six times that of the protective dose. On the fourth day the dose is found to lie between five times (always insufficient—see Example 95—as in the preceding cases) and ten times (dose sufficient, see Example 96). The experiments on the eighth day are important as to number and constancy. of incubation. While on the second day it is necessary to employ six times the protective dose, on the eighth day it suffices to push it simply to eight times; this is surprising, considering that in rabies one is not concerned with a pure intoxication by a fixed dose of poison, but with a virus which grows and spreads continually through the nervous system. From our own experiments and from those of other observers we know, in fact, that on the eighth day after infection in the sciatic nerve with the canine virus the lumbar marrow is already virulent, and it is admitted that a diffusion of the virus takes place even before the animal presents the symptoms of the disease. Adhering, nevertheless, to the often established fact of the constant relation of neutralisation between the virus and the serum, we must maintain that the multiplication of the virus during this period cannot be very considerable, and that when we undertake the treatment during the first half of the period of incubation we ought not to have to contend with very large quantities of virus; nevertheless, it cannot be too strongly recommended to commence in rabies, as in other infections, with the serum treatment as soon as possible after the disease has been contracted. After the eighth day it is perceived that

TABLE XIV.

Mode of infection.	Number of order.	Number of register.	Weight of rabbit in kilos.	Beginning of the treatment after infection.	Quantity of serum injected under the skin twenty-four hours before infection. Absolute.	Quantity of serum injected under the skin twenty-four hours before infection. Relative.	Result of experiment.
Infection in the sciatic nerve with canine virus, dilution 1 : 20.	1	84 a	1·850	1st day	c.cm. 1·15	1 : 1600	Died 20th day.
	2	85 a	1·550		,, 0·19	1 : 8000	Died 22nd day.
	3	86 a	1·570		,, 0·30	1 : 5330	Died 29th day.
	4	84	1·650	2nd day	c.cm. 0·31	1 : 5330	Died 15th day.
	5	85	1·600		,, 0·42	1 : 4000	Lived.
	6	86	1·870		,, 0·60	1 : 3200	,,
	7	95	1·820	4th day	c.cm. 0·37	1 : 5000	Died 25th day.
	8	96	2·000		,, 0.75	1 : 2660	Lived.
	9	11	2·000	8th day	c.cm. 0·25	1 : 8000	Died 31st day.
	10	10	1·800		,, 0·50	1 : 3600	Lived.
	11	108	1·810		,, 0·50	1 : 3600	Died 19th day.
	12	110	2·290		,, 1·0	1 : 3000	Lived.
	13	109	2·200		,, 1·0	1 : 2200	,,
	14	9	2·000		,, 1·0	1 : 2000	,,
	15	107	2·490		,, 1·5	1 : 1650	,,
	16	147	1·580		,, 1·0	1 : 1580	,,
	17	146	1·680	10th day	c.cm. 3·0	1 : 560	,,
	18	137	1·570	11th day	c.cm. 1·5	1 : 1000	Died 30th day.
Subdural infection, canine virus, dilution 1 : 50.	19	133	1·400	2nd day	c.cm. 0·5	1 : 2800	Lived.
	20	134	2·230		,, 1·0	1 : 2230	,,
	21	136	1·470	4th day	c.cm. 0·75	1 : 2000	Died 21st day.
	22	135	2·090		,, 1·5	1 : 1400	Lived.

From them it results that a dose only three times larger (Example 11) is inefficacious, and that a dose seven times larger gives an uncertain result, since in one case it is of value and in another not. The results, constantly positive, begin when we carry the dose to eight times that of the preventive (Example 110 *et seq.*). On the tenth day a dose forty-five times greater succeeds (Example 146), while on the eleventh day a dose twenty-five times greater (Example 137) is of no use, but should be a warning, as at the moment at which the injection was practised rabies, which in this animal appeared in an exceptionally rapid manner, had already developed. The following may, therefore, be taken as established, to be verified by other infections—viz., that there is an increase of the dose over the protective, but that such increase succeeds in less proportion than in the better known infections—e.g., tetanus and diphtheria. In fact, in rabies this increase for the first half of the period of incubation oscillates between six and eight times, whereas in tetanus, from the time of the infection up to the appearance of the first symptoms, a dose is required 1000 to 2000 times the strength of the protective, and in diphtheria 20 to 100 times. From what has been stated one may deduce how the dose differs during the period the dose has to be raised much more rapidly, but that on the eleventh a multiple twenty-five times greater does not succeed. Further than that the table does not inform us. We have not deemed it necessary, while experimenting, to supply data relating to a more advanced period of the disease, since it was incumbent upon us to demonstrate the possibility of curing, safely and with moderate doses of serum, an attack of rabies at the beginning of the period of incubation. This disease presents, in contrast with other maladies, the peculiarity of following a course in which is marked out with precision the moment of contagion and the development after a long period of incubation. Hence it is possible to apply the treatment soon after contagion without expecting that the disease will be more severe on the appearance of the first morbid manifestations. We have not occupied ourselves with any other aspect of developed rabies in the preceding researches; they are only approximately of value for actual calculations, since we are not yet in possession of exact methods of administration. The serum had a power inferior to that actually calculated, and we injected the mean dose of 1 in 100 for the intra-nervous infection with canine virus on the appearance of decrease of weight and of the first signs

of paresis. From this we can argue that at the period stated successes can only be obtained with quantities of serum about 100 times greater than the protective dose. The curative experiments made upon animals by means of subdural infections, though less numerous, confirm those made with intra-nervous infection, and give an idea of the limits between which the facts vary in passing from one mode of infection to the other. We see, in fact, as on the second day of infection, that there is not any noteworthy difference, since a dose of 1 in 4000 is required where the infection is in the sciatic nerve (Example 85), whilst for the subdural infection one of 1 in 2800 is necessary, nor do we know whether that is the maximum. On the fourth day a noteworthy difference is noticeable, since a dose of 1 in 2000 (Example 136) is no longer sufficient, while for infection in the sciatic nerve this dose is of service, as also is a lower one, as we find a dose of 1 in 3000 still active on the eighth day. We ought, therefore, to admit that in the cerebral infection there is a more rapid multiplication of the virus, which agrees with what has been established as to the manner of propagation of the virus of rabies in the organism. And with regard to the treatment we are able to say that when begun immediately after infection an almost equal dose of serum suffices, whatever may have been the part of the nervous system in which the virus has been deposited; but for ever so little later the dose of the serum should always be increased the nearer the seat of the rabid inoculation is to the nerve centres.

Course of the malady in the cured animals.—The weight of the infected animal continues normally to increase up to beyond half of the period of incubation, when the decline commences, which becomes rapid towards the close. However, there are cases in which the decline of weight commences much sooner—i.e., a little after the infection—and proceeds without interruption up to the death of the animal. In the cured animals the beneficent effect of the serum does not fail to show itself by arresting this fall whenever it may begin. The customary result is not perceived at the moment, but soon afterwards the lowering is prolonged for one, or at most two days. After that the curve again rapidly ascends. We give two very instructive examples of the former and the latter behaviour of the weight: they are taken from two experiments given in Table XV. In Example 146 the line representing the weight is found still in the ascent, till the moment of the injection of the serum (tenth day), but soon, during the progress of the infection, a decline commences, which after two days is checked by the action of the antitoxin. Still more evident is the influence of the serum in Example 147. The line representing the weight at the moment of the injection of the serum (eighth day) was found to be constantly declining, but after having continued for one day it is suddenly interrupted in order to give place to a rapid rise. When the treatment is undertaken promptly, and when there has not yet appeared any evidence of rabies, the animal as a rule manifests no sign of the infection and continues to comport itself as a perfectly healthy animal. On some rare occasions, however, an interesting fact presents itself. During the period corresponding to the regular development of rabies loss of weight commences, as well as a stupidity which from the first makes us fear the loss of the animal. This period surmounted, the animal, without any other treatment, picks up again towards the twentieth to the twenty-fifth day, and continues to keep healthy. There are (residual?) forms of rabies analogous to those which are found in persons who have undergone Pasteur's treatment and to which Murri and Bordoni Uffreduzzi have recently called attention.

TABLE XV.

Source of the serum.	Number of register.	Infecting units mixed *in vitro* with 1 c.cm. of serum.	Neutralised infecting units injected into the rabbit.	Result of the experiment.
1st. SHEEP I. Third strengthening	159a	16	1	Lived.
	160a	16	1	,,
	169	1600	1	,,
	170	2400	1	Died on the 8th day.
	189	800	50	Lived.
2nd. SHEEP IV. AND V. First strengthening	208	800	1	,,
	209	1000	1	,,
	210	2400	1	Died on the 9th day.
3rd. SHEEP III. and V. Vaccination...	238	1000	100	Died on the 10th day.
	239	1000	100	Lived.
4th. SHEEP I. AND V. Second strengthening	256	200	5	,,
	257	400	5	,,
	258	600	5	,,
	264	800	5	,,
	269	800	5	,,
	285	800	5	,,
	265	1600	5	,,
	270	1600	5	,,
	271	1600	5	Died on the 16th day.
	224	1600	5	Lived.
	286	2400	5	,,
	275	3200	5	Died on the 12th day.

VI.—ON THE NEUTRALISING POWER IN VITRO OF THE ANTIRABIC SERUM.

That with a small quantity of serum we should be able to neutralise, by simple contact outside the organism, the action of comparatively large quantities of the canine or the fixed virus was a fact already established by our earlier researches and only needed an exact determination of the limits of time and of quantity within which we were able to obtain this special action of the serum; our observations had not enabled us to assume for them the scientific and practical value which we now know, as a result of our renewed researches, undoubtedly appertains to them. Over and above its scientific value we have attached importance to this fact in order to discover by means of it a method of determining the strength of the serum which would be most advantageous. The method of determining *in vitro* is, in fact, the most exact scientifically, and the most convenient practically. Scientifically, it gives the absolute quantity of the virus which the serum is capable of neutralising, since in the method *in vitro*, as Behring and Ehrlich have noted, the varying conditions of individual sensibility do not come into play, nor do those of absorption and elimination from the body of the material injected. The advantages in the determination of the power of the serum from a practical point of view are most remarkable. Above all, there is a saving of time, the operation being performed there and then without an interval of twenty-four hours between the injection of the serum and that of the virus. Particularly when the mixture is made by multiples we can as early as the fifth day argue from the weight of the animal what will be the issue of the experiment; on the eighth day an absolutely safe conclusion may be arrived at, because in the determination by multiples, on introducing a strong quantity of virus, if in the mixture there remains undecomposed even merely a trace for each unit, this, repeating itself for as many multiples as there are, becomes capable of rapidly causing death. Thus it becomes superfluous to subject the animals to examination for any length of time. The determination by multiples of the infecting unit presents also the advantage of diminishing some of the uncertainty in the results, provided large quantities of the virus have been introduced; on the other hand, all the causes of uncertainty which we met with when making use of a minimum of infection come to be lessened by reciprocal compensation in the case of multiples. A not insignificant advantage is the economy in the matter of serum, since, in operating with the fixed virus, twenty-six c.cm. of serum per cutem is needed for every animal, whereas by the determination *in vitro* small fractions of a c.cm. are sufficient. Henceforward, in the determination of the serum the method of direct mixture may now be almost exclusively adopted, using fixed virus and injecting the mixture under the cerebral dura mater. As the basis of our calculation we take the number of the infecting units which a c.cm. of serum is capable of neutralising. Practically, the mixture cannot be prepared by making an emulsion there and then of a small quantity of virus in the serum, because the smallest portion of this virus contains a great number of infecting units and would consequently demand a considerable quantity of serum. Instead, we mix the serum

at a given dilution with the water of the virus itself. In the first experiments we used to mix a part of the serum with 10, 20, or 30 parts of emulsion of fixed virus, which represented 1 c.cm. of serum mixed with 800, 1600, or 2400 infecting units. In order to inject with the mixture an infecting unit of the virus it was necessary to very slightly increase the usual dose of emulsion employed, since the serum represented a very small proportion of the total volume. But in order to conduct the experiment with multiples—that is, to introduce such a quantity of the mixture as will contain more infecting units—one cannot sufficiently dilute the virus so as not to unduly increase the volume of the liquid by introducing it under the dura mater. We have, therefore, used the dilution of 1 in 50 to 200, regulating the quantity of the serum in accordance with this increase by mixing. In the last experiments with our typical serum made with the fixed virus, the unit of dilution of which is 1 in 5000, we have thought fit to make use of the dilution 1 in 1000 (five infecting units) mixed with serum ordinarily in the relation of 1 to 1, 1 to ½, 1 to ¼, and 1 to ⅛, which corresponds with 1 c.cm. of serum in contact with 400, 800, 1600, and 3200 infecting units; and by regularly injecting, along with the mixture, five infecting units we hope to combine with facility of preparation, on account of its simplicity, greater safety in the results, the multiple of least infection being employed. As to the period of contact, we, on principle, adopted a period of twenty-four hours at the temperature of the atmosphere; then, having ascertained that the action of the serum was independent of the time of contact—just as in the case of other infections—we injected the mixture a few minutes (five to ten) after it had been made. Before entering into this line of research we wished to ascertain whether our results might in any way be referred to an influence which the normal serum itself would exercise upon the virus of rabies. The experiments made on the serum of sheep, normal as to the identical conditions of dose and time observed in the case of the antirabic serum, have shown that of the animals thus treated one and all died.

In Table XVI. we report a series of trials *in vitro* of some samples of our normal serum. The experiments were practised with the serum of four groups of sheep, vaccinated and strengthened according to the plan described at the beginning of this article. The third column of the table indicates the proportion between the serum and the virus with which the mixture *in vitro* was made. In the fourth column, on the other hand, the portion of this mixture is given—that is, the neutralised infecting units which the animal received during the relative experiments. In all the four groups we note a uniformity of results, although the vaccinations were made at various times, and we treat of fresh sheep (Group 3); of sheep strengthened for the first time, giving the dose (Group 2); strengthened for the second time (Group 4); and strengthened for the third time (Group 1). These experiments, too, serve to confirm much of what is said in Part IV. of this article with regard to the question of the rise of the power of the blood under repeated vaccinations. In all the four serums it is seen that the neutralising power always oscillates between the same limits of 1 to 800 and 1 to 1600 (mean 1 to 1200)—that is, a c.cm. of serum is capable of destroying the action of 1200 infecting units, so that for our typical serum the protecting unit comes to correspond in the mean to 0·00083 c.cm. of serum. That is equivalent to saying that a c.cm. of our typical serum is able to preserve 1200 rabbits weighing one kilogramme each from infection by the fixed virus—a power which, referred to the body weight, as is done in the case of separate injection of virus and serum, attains to the figure of 1 to 1,200,000. The power very nearly approaches 1 to 1600, since in eight experiments (Nos. 169, 209, 238, 239, 265, 270, 271, and 284) death ensued only in two (Nos. 238 and 271), and in these not until the tenth and sixteenth days respectively. Above 1 to 1600 the positive results do not definitely cease, but continue gradually to diminish until in three experiments made with a strength of 1 to 2400 (Nos. 170, 210, and 266) we had only a single success. There are small oscillations due to differences in individual sensitiveness and in the graduation of the infection, as already many times mentioned. The table likewise furnishes us with information regarding the multiples. Although our experiments in this direction, especially in the case of the higher multiples, are not very numerous (we may possibly return to the subject), yet they elucidate as much as Behring and Ehrlich admit for tetanus and diphtheria—that is, that when the mixture of serum and virus is properly neutralised a considerable dose can be injected into the animal with impunity. We find that the relation of from 1 to 800 to 1 to 1600 is maintained when we inject five neutralised infecting units (Group 4). Example 189, for instance, shows that of the mixture 1 to 800 we can inject with impunity fifty fatal doses of virus; lastly, the experiments of Group 3, made with the infection of 100 neutralised infecting units, demonstrate that for the power of 1 to 1600 the result is uncertain (one favourable and one unfavourable)—results differing in no wise from those obtained when a single infecting unit or one of the lowest neutralised multiples of the same mixture is injected.

VII.—THE DIRECT PROTECTION OF THE NERVOUS SYSTEM.

In comparing the dose of the serum required to neutralise a determined quantity of fixed virus when the serum is injected under the skin with what occurs when the direct method is used we have been struck with the great difference observed in the two cases. By the direct method of contact *in vitro* the power of the serum appears to be immensely greater; the infecting unit of the fixed virus being taken as a base, we have seen that in order to neutralise it 10 c.cm. of our typical serum is required for the subcutaneous method, against only 0·00083 c.cm. for that by direct contact, and that the subcutaneous dose represents 12,000 times the dose where the direct contact method is used. We have asked ourselves, What can be the reason of this enormous difference, and by what means does the serum act in the two cases?—a question which has also been raised in the case of other infections and which has not been satisfactorily settled. Starting from certain considerations based upon the elective seat of action of the rabid virus, and guided by indications collected with regard to the localisation of immunity in this infection, we have been induced to inquire anew whether by injecting the serum directly into the nervous system, or under the skin, we could obtain by means of the same minimum doses as those employed when mixed with the virus the same effects as when this mixture was used. We have divided the experiments into four categories. In the first we have injected separately under the cerebral dura mater an infecting unit of virus and a protective unit of serum. In the second category, after a single infecting unit has been injected, we have injected further units of serum. In the third we have employed multiples—as many for the serum as for the virus. All the experiments of these first three categories have been made by injecting serum and virus separately after a lapse of time, but making use of the same trephine opening. In the fourth series, on the other hand, the serum and the virus were injected simultaneously, the one being introduced at a point of the nervous system far from that in which the injection of the other had been effected. For the injections of the virus we employed the path of the brain and of the sciatic nerve; the serum, on the other hand, has always been introduced under the cerebral dura mater. A rabbit of a mean weight of one kilogramme and a half supports the subdural infection of 0·5 c.cm. and also 1 c.cm. of serum at the same time without any morbid symptoms, and, if the operation is performed with care, without danger of reflux. The following table gives the relative results of these experiments. (See Table XVI.) The fact which indubitably results from the completion of these experiments is that antirabic serum injected directly into the central nervous system, separated from the virus, is capable of acting as effectually, in average dose, as when the mixture is made *in vitro*. We see, in fact, a single protective unit succeed—that is, 0·00083 c.cm. of serum (Examples 179 and 180); also the higher doses are employed against a multiple of infecting units; they have never been higher than those of 0·30040 c.cm., which are very far from as many as are required by the subcutaneous method against a single infecting unit or against a multiple. This fact induces us to believe that of the large quantity of serum injected under the skin only an imperceptible part may be utilised—viz., that which succeeds in coming into contact with the part sensible to the virus—in our case, the nervous system. The large residue must be lost not only because it is diffused in the whole organism, whilst the protective action must extend only over a small part of it, but also because a quantity is destroyed within the body and is eliminated by the organs of secretion. The serum injected under the skin diffuses itself in the entire organism

by means of the circulation of the blood in the lymphatics, whilst when it is injected under the dura mater it comes into direct contact with all the elementary parts of the nervous system by the special lymphatic paths which we know to be directly in relation with the nervous elements and which act independently of the general circulation. This is an established fact. It remains to be seen whether this series of experiments can elucidate what is demanded from protective serum. Let us make a more minute examination of the table. The first three categories of experiments—A, B, C—are made by introducing the virus into the neck at the same spot at which the serum was introduced some time before. This fact would lead us to surmise that here also one has to deal with a direct action of contact such as takes place *in vitro*, inasmuch as the twenty-four hours allowed to pass between the injection of the serum and that of the virus (Examples 107, 176, 191)—and, much better, the three days (Example 180)—would allow sufficient to be retained, because the serum is diffused and enters into the circulation by means of the cerebro-spinal fluid. But here the experiments of category D, which are made by introducing the serum and virus at the opposite extremes of the nervous system—the virus in the sciatic nerve and the serum in the brain come to our aid. These experiments are very conclusive, and it must be admitted also very elegant. We have drawn special attention to them, as the whole series, except the experiment made with the minimum of serum (Example 288), were entirely successful, although the *animals* infected in the sciatic nerve with the fixed virus—numerically equal to the animals cured—all succumbed to rabies. Notwithstanding these results the objection of a direct action is not completely overcome, since the serum injected even into the furthest points can be conveyed by means of the lymphatic circulation into direct contact with the virus deposited at the point of infection. But if the serum deposited in the brain penetrate along the sciatic nerve the cerebro-spinal fluid must be diffused to all the nerves, central and peripheral. And in this case the smallest quantities of serum introduced ought to undergo such a dilution by coming into contact with the virus, which is in proportion infinitely less, as the contact experiments *in vitro* have demonstrated to be necessary for a complete neutralisation. Nor does it avail to object, as appears from the fourth column of the table, that when the serum and the virus are injected separately a single protective unit does not suffice to neutralise an infecting unit, but that it is necessary to introduce a multiple dose to at all compensate for the greater dilution which the serum must undergo before coming into contact at the infective centre. It results, in fact, from category A that a single protective unit suffices in two or three cases, and if in the categories B and D a multiple of the serum has been introduced this is always too weak to be able to act after so extended a diffusion, independently of the fact that perhaps those doses can be reduced still more considerably. We are, therefore, continuing to work at a fresh series of experiments made upon rabbits and dogs with the object of determining what is the least dose of serum introduced into the brain necessary to arrest the infection made in the sciatic nerve and in the eye, and we hope at the same time to establish the period after infection, and the dose of serum, at, and with, which it may be possible by this kind of treatment to cut short the course of the rabic attack. Meanwhile, however, the experiments which we have made up to the present give rise to the suspicion that the phenomena of neutralization *in vitro* of the virus by means of the serum may be only apparent, and that, on the other hand, the serum introduced with the mixture, acts on its own account on the part specifically sensible to the given virus, so hindering its cultivation. Consequently, the dose of the serum which in the mixture is held to be necessary to destroy the given quantity of the virus would not be able to sufficiently guard the sensitive tissues of the body against the quantity of the virus introduced with this mixture. Certainly the objection which a similar interpretation has met with in the analogous experiments for tetanus and diphtheria—that is, the great difference of the dose in which it acts in the body, and *in vitro*—cannot, in the light of our experiments, be raised in the case of rabies. We do not wish it to be believed that we insist on this argument for the sake of a theory; on the contrary, we are convinced that this point of view, besides illustrating more completely the conception of the new therapeutics by means of protective substances, opens up new paths of research and new applications to practice. To the general conception of specific immunity will have to be added in future that of elective immunity, general specific therapeutics will have to give place, wherever possible, to specific local therapeutics, the serums being introduced directly into those parts which are most favourable for their protective action against the invasion of the morbific agent. From this system of treatment two great advantages may be derived—viz., rapidity of action and the exhibition of small quantites of the remedy. In certain cases, when great quantities of virus are present the doses of serum required to neutralise it when introduced under the skin, would be so great that cure by this way is evidently impossible. In fact (Example 191), we have been able to save one animal by means of only 0·16 c.cm. of serum introduced into the brain, while if we had used 50 infecting units by the subcutaneous way we should not have been able to succeed with less than 500 cubic centimetres. The practical outcome is that in developed rabies, for which a large multiple of the least mortal dose has been given, the medulla must be protected against the progress of the disease, and for this purpose one cannot hesitate to have recourse to the

TABLE XVI.

Category of experiments.	Number of register.	Infecting and protective units injected.	Relation between infective units and protective units.	Length of time after the injection.	Place of infection, serum always subdural.	Result of experiment.
A unit of each of serum and of virus.	179	1 and 1	1 : 1	2 hours	Same spot of trephining.	Lived.
	185	1 and 1	1 : 1	24 hours		Died 9th day.
	180	1 and 1	1 : 1	3 days.		Lived.
A unit of virus and a multiple of serum.	168	1 and 130	1 : 130	Same sitting	Same opening of trephining.	Lived.
	167	1 and 130	1 : 130	24 hours		,,
	176	1 and 150	1 : 150	,,		,,
Multiples of serum and of virus.	188	100 and 500	1 : 5	3 days	Same spot of trephining.	Died 7th day.
	191	50 and 200	1 : 4	24 hours		Lived.
	192	50 and 100	1 : 2	,,		Died 7th day.
Serum and virus introduced in parts distant from the nervous system.	175	1 and 130	1 : 130	Same sitting.	Other hemisphere.	Lived.
	236	1 and 150	1 : 150		Sciatic nerve.	,,
	237	1 and 300	1 : 150		,,	,,
	252	2 and 360	1 : 180		,,	,,
	253	2 and 360	1 : 180		,,	,,
	280	5 and 360	1 : 72		,,	,,
	288	5 and 300	1 : 60		,,	Died 23rd day.
	190	10 and 400	1 : 40		,,	Lived.

expedient of introducing serum directly under the dura mater by means of trephining.

VIII.—Application of Antirabic Serum-therapy to Man.

The final aim of our researches on rabies scarcely needs repetition—it is that of substituting for Pasteur's vaccination method, in the case of a patient who has been bitten, the treatment with protective serum. In our preceding works we have been somewhat reserved on this point, wishing, on principle, to restrict the application of the serum to the more grave cases outside the range of an antirabic institute, we have done this simply from excess of prudence and out of respect for a method of cure of tried efficacy. But now, after our recent experimental results, which confirm, complete, and clear up in the most minute particulars earlier experiments, and after having taken a stronger serum and found a more exact method of determining its activity, there is no reason for such reserve, and we have no longer any doubt that the treatment by serum in rabies must be soon and completely substituted for Pasteurian vaccination.

1. *Experimental superiority of serum treatment over the vaccination of Pasteur.*—By means of a course of study continued in this laboratory without interruption for six years we have endeavoured to rest the serum treatment of rabies upon a larger and firmer experimental basis, convinced that the experiments of the laboratory would at last find their complete application in the practical field—as already we find those upon serum treatment in tetanus and diphtheria and those of the antirabic vaccination of Pasteur. Now if we compare our experiments and those which justify Pasteur to come to their application to man, we feel we are decidedly in a much stronger position—we are able easily to protect the rabbit, an animal excessively susceptible to rabies, and which we know can only be exceptionally protected by the vaccination method of Pasteur; we are able with a single injection, made twenty-four hours before the subdural infection, to preserve the rabbit from the virus of rabies "da strada," whilst we know that by Pasteur's method it is necesary to make many injections and to allow many days to pass from the beginning of the vaccination before the animal is able to bear the subdural infection. We are able to save the rabbit by a single subcutaneous injection—also after the subdural infection and in an advanced stage of the period of incubation—whilst by Pasteur's method one never succeeds under these conditions in saving the animal. We succeed with a single subcutaneous injection, made a little before trephining, in preserving the animal from subdural infection with virus of the greatest strength—with the fixed virus—which the Pasteur method never succeeds in doing. Now, if the applications of the Pasteur method which have been made upon man are only the logical consequences of experimental facts, it is natural that the same justification for application to man—and even greater justification—should be found in that method in which the experiments are very much more conclusive. Only in the presence of the Pasteur method we felt that we could ourselves make a grave objection, and that was regarding the duration of the immunity, which for the treatment with serum we know in general to be much less than the immunity determined by vaccination. However, such a question loses its importance from the practical point of view when it has been established that the action of the serum in the organism is that of neutralising the action of the virus, and that, taking care to introduce the dose of serum sufficient to exert this action, we prevent for ever the development of the disease.

2. *Practical advantages of serum treatment over the vaccination of Pasteur.*—Rabies is one of the few infections in which this question is of practical interest, because, given the special conditions of contagion and incubation, it becomes possible in it to apply a treatment of vaccination after the infection has taken place; on the other hand, in the greater number of infections in which one can only intervene in a case of developed malady this discussion would be out of place, because vaccination in such conditions, if it does not aggravate, is not the least help to it in any way. It is very true we have tried in developed rabies to have recourse to vaccination, trying to find a way in which the material can be caused to be rapidly absorbed. We would speak of the method of Murri, by means of injection of the emulsion of rabies into the veins. But the few experiments of this writer were made exclusively on persons placed previously under the care of Pasteur, and, as we have already said, demonstrate little as to healing taking place in similar conditions without treatment of any kind. Whilst, then, the trials made on man and animals not placed under any previous treatment without exception ended in failure, we are able to divide the advantages of serum-treatment over the vaccination of Pasteur into two categories—the first greater efficacy, the second greater convenience. The greater efficacy of the serum in comparison with vaccine arises, above all, out of the property of the serum of acting rapidly, since it, as the final product of the vaccination from which it proceeds, has no need of a long period of preparation within the patient. The utility of immediate action follows clearly, from what we have previously demonstrated, as to the strict proportion which exists between the quantity of the virus and that of the serum necessary to destroy its action. We must imagine that generally with the bite of a rabid animal there is introduced into the body, by means of the saliva, only a very small quantity of the virus, a quantity so trifling that in considering the small number of persons bitten by a rabid animal who contract the disease it must approach almost always to the least mortal dose. Now, knowing that during the period of incubation, and before there is any manifestation, a certain multiplication of the virus introduced takes place, it will be understood how the cure can be rapidly effected and how favourable results must be obtained. When we inject the serum under the skin the blood, within a few minutes, acquires a protective property. In vaccination, on the contrary, this formation of the protective product takes place very slowly, so that in our vaccination experiments—pushed on rapidly—of rabbits we were not able to make the trial infection until at least fifteen days from the beginning of the vaccination. This slowness of action is recognised in the method of Pasteur—in fact, with this method the result is not guaranteed, and in the statistics the deaths are not taken into consideration before fifteen days have passed after the treatment is exhausted, so that, calculating twenty to thirty days as the mean duration of the vaccination, we have to wait for a period of thirty-five to forty-five days before the cure can be declared efficacious. We have analysed, in the "Annals of the Pasteur Institute," the cases of death taking place in the Institute during and after treatment, and we have found that the greatest number were cases with a short incubation period (twenty to thirty days), which shows how in these conditions the Pasteur cure succeeds in being of little efficacy. Serum treatment ought also to have over vaccination a superiority with which the latter cannot compete when the cure has only been undertaken at an advanced period of the incubation, or when we are treating a deep bite made in the course of large nervous trunks and in the neighbourhood of the brain. In Russia, where serious wolf-bites are frequent, the mortality of the cured, notwithstanding the most intensive method, remains always considerable. Then, too, the advantages as regards convenience which our preparation has over the inoculation of Pasteur are not at all to be despised, because they, according to the last analysis, not only enhance the efficiency of the method, but allow of a rapid and general application. Our remedy consists of a solid material, preservable, not dangerous to handle, which can therefore be sent anywhere and can be applied by all medical men, just as can any other remedy, by subcutaneous injection. It is not needful to remember how, on the contrary, for the Pasteur vaccine special institutes are necessary, where the material is prepared day by day, and where the patient has to be taken directly, involving pecuniary considerations and the loss of most precious time. The complete absence of any virulent action whatever in our preparation not only assists its employment in practice by less expert hands, but overcomes the reluctance which many feel to having themselves injected under the skin with a great and increasing quantity of fixed virus, although the fear may be unfounded, the vaccination of Pasteur being discovered to be quite harmless. Our preparation gives the least local irritation, and by being easily soluble and assimilated the local symptoms of Pasteur's numerous and abundant injections are minimised—symptoms which, if not serious, are certainly very disagreeable. We do not wish to place the economic advantage in the last category. The charge for the Institute (60 and 100 lire per head), the maintenance for twenty to thirty days, the expenses of the journey, and the interruption of business constitute either an expense that the individual can ill afford or a burden on the community. The treatment by Pasteur's method, notwithstanding its indisputable efficacy, tends to

become unpopular precisely according to the degree of these inconveniences. We have a clear proof here in Italy that, though institutes against rabies are established everywhere, there still appear in the bulletins of public health from seven to fourteen deaths from rabies a month—about 100, that is, per annum.

3. *Criterid for the dose and for the manner of application in man.*—The recent publications on serum treatment demonstrate how these data are completely established by experiments on animals. As to rabies, from this point of view we find ourselves in a more advantageous position, since the method of Pasteur already established constitutes for our method a good standard of comparison in man. For the application of the antirabic serum treatment in man we ought to start from the established fact that a given quantity of serum neutralises a given quantity of virus, and, making use of the experimental data, we should establish some proportional relations between the dose of the serum held to be efficacious in the rabbit and that which would serve for man. The first datum which is necessary for this determination is to know the quantity of virus which is found in man at the moment at which the treatment is applied. To judge by the small proportion of persons who, bitten by rabid dogs, are attacked by rabies and by the weak concentration in which the virus is found in the saliva, we must hold that the quantity of the virus deposited in the wound with the bite of the rabid animal approaches nearly always to the minimal lethal dose. And since rabies can be cured at the first moment of the period of incubation, and we know by our experiments that during the first half of this period a considerable multiplication of the virus does not take place, we should find ourselves at the moment of the application of the remedy in the presence of small quantities of the virus, which must vary between very narrow limits. On the other hand, in the infections in which treatment of the declared malady is only possible, as in tetanus and diphtheria, by reason of the conditions in which the infection and the multiplication of the virus take place, there must be some very marked differences in the quantity of the pathogenic principle to be neutralised by the serum. That for single cases must render necessary enormous doses of serum and reduce to much uncertainty the issue of the treatment. We will add here also that in rabies those objections cannot be raised with regard to serum treatment which justly are an obstacle in mixed infections, such as diphtheria, preventing a complete success of the treatment. The dose of the virus with which the infection is given in man can be compared with advantage to that introduced into the rabbit by the subdural and nervous infection, and the comparison results so much more favourably for man, inasmuch as he is not so susceptible to rabies as is the rabbit, nor is the virus deposited directly at the point of greatest sensibility, as in the nerve centres and the great trunks. And that in the rabbit, precisely in regard to this point, the question of protection may be more difficult, is demonstrated by repeated experiments made on applying to it the same series of vaccinations according to Pasteur which are made in man. Although the treatment may have been preventive, and followed by a long latent period before infection, yet such animals infected by the subdural method by the canine virus are saved in a very small proportion of cases. The experiments upon the rabbit relative to the dose of the serum (restricting ourselves always to the results comprised within the limits of absolute certainty) tell us that, as we have seen, for the canine virus the dose of our typical serum is of the strength of 1 in 25,000—that is, 0·04 c.cm. per kilogramme of the weight of the animal; but, passing to the curative dose against the virus, we have found that up to the fourth day after the infection it rose to 1 in 4000—that is, six times the preventive dose, corresponding to 0·30 c.cm. of typical serum per kilogramme. Applying this calculation to man, we find ourselves, let us repeat, in more favourable conditions; and, calculating upon a mean weight of the body of 70 kilogrammes, we find that the curative dose, after a sudden bite has taken place, corresponds to 20 c.cm. of our typical serum, being equal to from 2 to 5 grammes of the dried product. Now, wishing to render ourselves independent of variations of the activity of the serum, we shall adopt a standard of measurement—similar to that used in the case of diphtheria—viz., a protective unit; and we assert that in order to treat rabies a little while after the bite 25,000 protective units are necessary—that is to say, the dose of serum sufficient to neutralise the quantity of fixed virus capable of killing 25,000 units of the weight of one kilogramme. As to the manner of injecting the dose instead of introducing it all at one time, as we have done in animals, we think it may be more convenient to divide it, in the belief that the too sudden accumulation of a foreign material in the blood may favour elimination and hence the loss of active material. We advise, therefore, the division of the strongest dose into three injections—the first to be made at once, injecting half of the dose above determined, and the rest divided into two equal doses at intervals of three days, so that the whole treatment is completed in the course of a week. We should always keep before us the fact that the dose is relative to the period at which one begins the cure and to the power of the infection; therefore, the dose given is of value, as regards a bite of mean gravity, for treatment undertaken during the first four days after the infection, and we hold that, with the practical facilities which serum treatment offers in rabies, such a period of time ought never to be exceeded. From the fourth to the fifteenth day after the bite we advise that the dose of serum should be doubled, the same order in making the injection being still followed. We hold that this doubling of the dose is essential. We also hold that the dose should be a bold one in the case of more extensive and deeper bites, or such as are made in proximity to the nervous centres, especially those on the face.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

UNRUPTURED HYMEN AT FULL TERM OF PREGNANCY.

BY EDWIN T. ENSOR, M.D. NEW YORK.

THE following case, although not by any means unique, is, I think, sufficiently rare to make it worthy of record. All have heard and read of such, but in an experience of something like 4000 labours, extending over a good many years, I have never personally met with such a one before.

The patient was a woman about forty-two years of age who had been married ten months. Her husband, unmarried previously, was a very corpulent man, apparently of the age of forty-five. On examination I discovered the existence of a perfect hymen, which admitted the passage of the index-finger without difficulty, but not of the first and second fingers without risk of rupture. The presentation was normal, the head being in the first position; the membranes were intact. The labour was very slow. When the dilatation of the os was practically complete I ruptured the membranes, and twelve hours later delivered under chloroform, administered by my friend Dr. Bawden. The hymen was ruptured in the application of the forceps, but there was no perineal laceration, and the child, a well-developed female, was living. The total duration of the labour was forty-five hours. Both mother and infant are doing well.

Chesterton-road, W.

A CASE OF TREPHINING FOR INJURY TO THE HEAD PERFORMED AT SEA.

BY J. TERTIUS CLARKE, L.R.C.P. LOND., M.R.C.S. ENG.,
SURGEON TO THE BRITISH INDIA STEAM NAVIGATION COMPANY; LATE HOUSE SURGEON, ROYAL HANTS COUNTY HOSPITAL, WINCHESTER.

AS I have a very clear recollection of two cases of compound depressed fracture in which, I think, trephining was imperatively called for, but not done, both of the patients dying, and as in the following case the operation was performed under somewhat disadvantageous circumstances I hope that it may be of use to publish it. At 11.30 P.M. on June 24th, 1895, I was called to see an ag-wala, or native fireman, on whose head an iron ash-bucket, weighing about 25 lb., had just fallen from a height of about 20 ft. The man had not lost consciousness but had a curved scalp wound about three inches long, at the bottom of which was

a depression in the bone about two inches long, with a fissure at each end extending beyond the angles of the wound. The length of the depression passed outwards and forwards, the inner end lying just to the right of the middle line and in front of the coronal suture, the anterior edge being depressed below the posterior. There were no spasms of any kind or symptoms of pressure, but I decided to elevate or remove the depressed fragment as soon as I could get things ready. Fortunately, an Indian medical man, Dr. Mittra, was on board, who kindly assisted me by giving chloroform. The wound was enlarged by half an inch in both directions laterally; and an incision an inch and a half long was made, passing forwards from the middle of the anterior edge so that two triangular flaps could be reflected and more room obtained. The bleeding was stopped, and a three-quarter inch trephine applied to the bone in front of the depressed portion; a disc was removed, and as I found that the bone was so tightly wedged that it could not be raised the trephine was reapplied, and a segment as large as three-fourths of the trephine area taken away. I then removed the remainder of the depressed portion with forceps and elevator. The dura mater I found to be intact. The oozing was stopped by hot-water not sterilised, the wound was dried and the flaps sutured, a small piece of tubing being left in; the dressing was iodoform, lint, and wool. I left no fragments of bone lying on the dura mater, as I was not at all sure—in fact, I was very anxious—about my antiseptics, a ship not being the best place for an operation. This had been performed on one of the hatches, my assistants being, of course, untrained; dirt was plentiful, the lights were indifferent oil lamps, the patient's head was less than two feet above the ledge on which I was standing, and the ship was rolling all the time. The man was left on the hatch on which the operation was done until the next morning, when he was removed to a cabin. He bore the operation well, although it took a considerable time chiefly on account of the conditions under which it was performed. His highest temperature was 100·4° F. at 11·30 A.M. of the next day, afterwards it did not rise above normal; his pulse was very slow, usually not over 50, and there was slight pain in the head. He slept well and took food well. On the 29th he was moved into Colombo Hospital in order to avoid a long voyage, and about a week or ten days after was sent up to Bombay by boat. The wound did not suppurate at all.

Colombo.

THE EFFECT OF THYROID EXTRACT IN MYXŒDEMA COMPLICATED BY ANGINA PECTORIS.

By H. C. L. MORRIS, M.D. BRUX.

A MAN aged forty-eight came under my care some months ago, having suffered from myxœdema and occasional attacks of angina pectoris for several years. The patient not having received any appreciable benefit from treatment, I determined to try thyroid extract, watching carefully the effect upon the heart. I began with half a tabloid (5 gr.) twice a day. On the fourth day he was seized with two most severe attacks of angina, lasting over an hour, and gave me much anxiety. I at once stopped the extract, but at the end of a few weeks, at his request, I made another trial, giving him the unusually small dose of 2½ gr. every second day. He experienced no discomfort until the twelfth day, when he again had a severe attack of angina pectoris, and I had again to discontinue the extract. Neither before nor since have his attacks been anything like so serious. The pathology of the case is puzzling, as Schäfer has recently pointed out that thyroid extract distinctly lowers the blood pressure. Perhaps the angina was produced by its action on the central nervous system.

Bognor.

A CASE OF CARBOLIC ACID POISONING; RECOVERY.

By RICHARD CATON, M.D. EDIN., F.R.C.P. LOND.,
PHYSICIAN, LIVERPOOL ROYAL INFIRMARY.

THE patient, a young woman aged seventeen years, was brought to the Liverpool Royal Infirmary at 1.22 P.M. on March 2nd, 1895. On admission she was comatose, with stertorous breathing, the breath smelling strongly of carbolic acid. Her conjunctival reflex was absent. The skin was dry and the tongue dry and brown, with fungiform and filiform papillæ very prominent. The pulse was thready and too frequent to count. On examination of her fauces a few greyish-white patches were to be seen, and one especially large white patch on the soft palate. There was considerable swelling of the faucial tissues. The pharynx would not admit of the introduction of the tip of the little finger. On removing the little finger after examination of the fauces it was found to be covered with blood. A hypodermic injection of twenty minims of brandy was given, and several attempts were made to pass a small, soft stomach tube, all of which were unsuccessful owing to the swelling of the faucial tissues above described. A hypodermic injection of one-tenth of a grain of apomorphine was then given. In twelve minutes the patient vomited a little undigested food, a trace of blood being present with it. The vomited matter smelt strongly of carbolic acid. She was then removed to the Clarence Ward and placed in a bed already prepared for her, with hot bottles, and a steam tent was fixed up around the bed. Hot fomentations were applied to her neck; on the application of these her pupils dilated widely. Three quarters of an hour after her admission she showed signs of returning consciousness. She now became very cyanosed and rather more collapsed, so I tried to stimulate her respiratory, cardiac, and vomiting centres by one-fiftieth of a grain of strychnine, given hypodermically. After the administration of this the cyanosis gradually disappeared and her respiration became more natural. During the whole of this time her tongue was held forward, as was also her jaw, and the fauces were repeatedly cleared of mucus. About three quarters of an hour after the hypodermic injection of strychnine she vomited several times. The vomited matter consisted of undigested food, mucus, and several small blood clots; it smelt strongly of carbolic acid. She now recovered consciousness and had small quantities of milk (one drachm at a time) by the mouth, which was swallowed with difficulty. In the evening she was put on a mixture containing carbonate of bismuth, bicarbonate of soda, carbonate of magnesia, and water. The pupils became normal. The respiration was 25 and regular in time and force. On March 3rd the respiration was 30 and the pulse 120. There was a blister filled with serum on the left thumb. The urine was almost black and of sp. gr. 1022; the reaction was very acid and it smelt strongly of phenol; it contained no albumin. With bromine water it gave a yellow precipitate; with perchloride of iron added drop by drop a violet colour was produced. On March 4th there was great tenderness on pressing over the region of the tonsil. The temperature was 100·2°F. There was great difficulty in swallowing, and carboluria still existed. For the first time albumin appeared in the urine. The respiration was 20 and the pulse 100. On the 6th there was still carboluria. There were a few moist sounds in the chest, with bronchitic expectoration. On the 7th the pulse was 80 and the respiration 20. There was no trace of carbolic acid and no albumin. The patient continued to improve and had her diet gradually increased from fish and chicken to an ordinary diet. The bowels were kept regular by enemata of one ounce of glycerine till March 16th, when she had half an ounce of castor oil when required. The patient left the infirmary on March 25th perfectly well. This case was reported by Dr. S. J. Ross, house physician, and was treated by him during the acute stage.

Liverpool.

A CASE OF BELLADONNA POISONING.

By W. T. MOULD, L.R.C.P. LOND., M.R.C.S. ENG.,
SURGEON-CAPTAIN, ARMY MEDICAL SERVICE.

ABOUT 2.45 P.M. on Aug. 4th, 1895, I was called to see an officer at his bungalow. I found him lying on his back and deeply comatose; the breathing was stertorous and the pulse full and bounding. There was spasmodic twitching of all the limbs and face, this being much more marked on the left than on the right side. The plantar reflex was exaggerated, but I could not elicit the knee-jerks, nor was there ankle-clonus. The pupils were widely dilated. The history was not very clear; his native servant had called in a brother officer to see him, as he said he was making "a noise and was convulsed." This officer then sent for me. On questioning the servant I found that about 1.30 P.M. he had taken a dose of medicine—I was at the time treating

him for some diarrhœa of a dysenteric character. This medicine was a ten-grain Dover's powder, and the bearer had mixed it with belladonna liniment instead of water. The liniment had been ordered that morning for a contused shoulder and had not been used. I at once took the bottle with me and went to the hospital, on my way calling on Surgeon-Captain Healey for assistance, and as he had some hypodermic solution of morphia he at once went and injected a third of a grain. I found that nine or ten drachms of the liniment ordered that morning were missing. On returning with the stomach pump I found the patient in the same condition, but he struggled violently during the passage of the tube. About a pint of warm water was introduced and withdrawn from the stomach. The patient's struggles still continued and he retched violently so that the tube had to be taken out, when he vomited. After a short interval the tube was again passed, and as the struggling and retching were less the stomach was washed until it was quite clean. The first washings were brown and smelt strongly of the liniment, but later were quite clear and free from smell; they contained but little food as he had only had some toast and milk with limewater that day. At 6 P.M. another third of a grain of morphia was injected. The symptoms still persisted except that breathing was less stertorous and the twitchings had completely passed off. Between 8 and 9 P.M. he gradually roused and became noisy, and tried to get up to go to the bathroom to micturate, but on being given the utensil he was unable to relieve himself. From this time he was noisy and delirious, and at half-past nine I gave him some soup with a spoon, but he soon vomited it. He was still very anxious to pass water, and a catheter being used nearly a pint was drawn off. After this he slept quietly for two hours, when he awoke and answered questions after some hesitation, and took some milk. During the night he slept fairly well, but was constantly talking in his sleep and rousing and starting up. The next day he was well but for a dryness of the throat and paralysis of the pupils; these symptoms passed off in a day or two. He said that he noticed the medicine burnt his throat and stomach, and that it caused some colicky pains, but he remembered nothing between taking the medicine and the following morning.

I think the case worthy of record, considering the large amount (ten drachms) of such a strong preparation of belladonna being taken and treatment being successful, and also the fact that there was a considerable interval between the poisoning and the first use of morphia as an antidote, although with the poison he took a grain of opium, which probably retarded its action.

Lucknow.

NOTE ON A RARE CONDITION OF THE OMENTUM.

By H. M. N. MILTON, M.R.C.S. Eng.

I WISH to add another to the cases recorded by Dr. Greig Smith and Mr. Lawson Tait respectively in recent issues of THE LANCET.[1] The tumour, a simple ovarian cyst of long standing and containing some thirty pints of fluid, was attached at three places. At its anterior superior margin was a union three inches broad with the omentum, five or six of whose vessels "resembled fat, well developed earthworms." Three inches to the left of this was a firm adherence to the abdominal wall, some six square inches in area. This I tore through with my hand before emptying the cyst, and it was only after the removal of the latter that I found a very free hæmorrhage taking place. The whole area of the adhesion presented the appearance of a cavernous angioma, or perhaps more exactly of a placenta, and it was only possible to arrest the bleeding by the use of the actual cautery. This had to be very thoroughly applied, but seemed in no way to affect the patient's rapid recovery. The third point of attachment was formed by the pedicle, which, reduced to the size of a lead pencil, presented no visible vessels. This pedicle certainly had the appearance of having been twisted, and there is no doubt that practically the whole of the blood-supply of the tumour passed through the cirsoid aneurysm of the omentum and the nævus of the abdominal wall.

Cairo.

[1] THE LANCET Aug. 3rd and 10th, 1895.

A Mirror
OF
HOSPITAL PRACTICE,
BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.* lib. iv. Proœmium.

ST. GEORGE'S HOSPITAL.

TWO SUCCESSFUL CASES OF LAPAROTOMY, ONE FOR DIFFUSE SEPTIC PERITONITIS OF FOUR DAYS' DURATION, AND THE OTHER FOR RUPTURED HYDATID CYST.

(Under the care of Mr. A. MARMADUKE SHEILD.)

THESE cases illustrate in a striking manner the success which may attend the prompt surgical treatment of two conditions which a few years ago were regarded as entirely "medical" and beyond the reach of help of any kind. The first case is a fairly typical one of acute perforative peritonitis, the lesion being, as usual at the age of this patient, in the vermiform appendix. We notice that Mr. Sheild attaches considerable importance to the method of flushing the peritoneum which he employed. In the second case the amount of shock and the subsequent local symptoms appear to have been out of proportion to the evidences of lesion found at the operation. The small amount of fluid in the peritoneum suggests that the shock was possibly due more to the alteration of tension in a large cyst, such as takes place when aspiration is performed, than to the effect of the fluid on the peritoneum. For the notes of these cases we are indebted to Mr. Gerald R. Baldwin.

CASE 1.—A youth aged seventeen years was admitted into St. George's Hospital on the afternoon of Aug. 10th under the care of Dr. Penrose. His bowels had been obstinately confined since Aug. 6th. On the morning of the 7th he had been suddenly seized with acute abdominal pain. On the 8th he began to vomit after all his food. On the morning of the same day he consulted a druggist, who prescribed purgatives, which considerably increased the pain. On the 10th the pain was much worse; the patient was continually vomiting and was utterly prostrated. A medical man who was called in to see him advised instant removal to a hospital. On admission the patient was collapsed, with feeble pulse and an anxious, drawn expression of countenance. His temperature was 101° F. The tongue was dry and brown. The abdomen was excessively rigid, but not much distended. It was generally tender all over, but no marked resistance was noticed in the right iliac fossa. Almost immediately after admission he was seen by Dr. Penrose and Mr. Sheild, who considered the case to be one of perforated vermiform appendix, with general peritonitis, and decided on immediate laparotomy. Accordingly the patient was at once taken to the operating theatre, and when fully anæsthetised Mr. Sheild opened the abdomen by a median incision, bubbles of gas and foul-smelling fluid escaping. The intestines were distended, congested, and covered by purulent lymph which extended even over the peritoneal surface of the diaphragm. Search in the region of the cæcum showed the mischief to have originated in ulceration and perforation of the vermiform appendix. This was ligatured near its base, the diseased portion being cut away with scissors. The peritoneal surface was thoroughly washed out with ordinary hot water poured in from large jugs. The intestines were drawn out on a towel and repeatedly washed. The abdominal wound was closed with silkworm gut sutures and antiseptic dressings applied. Next day the temperature was normal, all pain had ceased, and the patient's face was tranquil. The bowels had acted freely after a saline purge. The subsequent history was one of uninterrupted convalescence, as the temperature never rose above normal. The patient was allowed to get up on Aug. 24th and has made a perfect recovery.

Remarks by Mr. SHEILD.—Cases of recovery from diffuse suppurative peritonitis are still sufficiently rare to merit publication. The points of interest in this case are—(1) that the perforation had occurred four days prior to operation,

and (2) that practically the whole abdominal cavity was inflamed and filled with offensive fluid and gas, while the intestines were covered with flakes of puriform, adherent lymph. The rapid and easy recovery from conditions which may well have seemed desperate may be attributed to the youth of the patient, and especially to the flushing with warm water poured from large jugs, which I regard as a useful method, by which proper cleansing can be carried out. The careful management of the anæsthetic (A.C.E. mixture with plenty of air) and rapidity in operating are matters of great consideration in cases like these. The publication of this case may, it is hoped, stimulate surgeons to deal with them, and it must ever be remembered that the sooner surgeons operate in perforative peritonitis the better are the patient's chances.

CASE 2.—A man aged thirty years was admitted to hospital under the care of Dr. H. D. Rolleston on Aug. 21st. On the morning of that day he had been seized with sudden and very acute abdominal pain, which was soon succeeded by vomiting and collapse. On admission he was intensely collapsed and almost pulseless. He complained of great abdominal pain and tenderness, most marked in the right hypochondrium, where there were resistance and dulness. The right rectus muscle was tensely contracted. He vomited copiously after admission, the vomited matter being clear and watery. He was seen in the evening by Dr. Rolleston and Mr. Sheild, who decided upon exploratory laparotomy. The patient being fully anæsthetised, the abdomen was opened by a median incision. The intestines, including the duodenum and stomach, were healthy. The abdominal cavity contained a quantity of clear fluid. After some search a large prominence was noticed on the lower surface of the liver. This was aspirated, clear hydatid fluid being drawn off. Incision showed the presence of a large hydatid cyst in the liver. The fluid being evacuated, the margins of the cyst were with great difficulty attached to the parietal peritoneum, which was depressed to meet it. A long tube was introduced and the abdominal wound closed. On the 22nd the patient was slightly jaundiced and had abdominal pain; the pulse was quick and the temperature 101° F. He was very violent and restless and tore at his dressings. He was treated with small doses of morphia. The discharge was profuse and bile-stained. On the 23rd he was better and less violent. In the night he struck his attendants and required forcible restraint. The patient had done well since the last note, although there was still profuse bile-stained discharge.

Remarks by MR. SHEILD.—Rupture of a hydatid cyst into the peritoneal cavity is a well-recognised cause of sudden collapse and death. Such cases have occurred, even in old calcified hydatids, from slight blows upon the abdomen, as in sparring. The diagnosis is always dubious, and the accident a very fatal one The present case is important in many respects. It illustrates the value of abdominal section in dubious cases associated with grave abdominal symptoms. The small quantity of free fluid points to the fact that leakage, rather than extensive extravasation, had taken place. The opening of a deeply seated cyst, and attaching it to the peritoneum, which was drawn down to meet it, was a matter of considerable difficulty. This is one of the few published cases where abdominal section has been successfully performed for ruptured hydatid cyst. There is still profuse discharge of bile-stained fluid from the tube, but the patient is in a good condition, with every chance of recovery, and, whatever be the ultimate result, the operation seemed undoubtedly instrumental in rescuing him from impending death.

ROYAL INFIRMARY, NEWCASTLE-UPON-TYNE.

FIVE CASES OF UMBILICAL HERNIA.

(Under the care of Mr. FREDERICK PAGE.)

THE results now obtained, under favourable conditions, by operation for the radical cure of umbilical hernia are well illustrated by this series of cases. It is possibly too early at present to speak of the cures as radical ones—time only will prove this; but the immense relief afforded to the patients for the time must be apparent to all readers. To operate on a case of strangulated umbilical hernia in a typical patient is a great tax on the skill and resource of any surgeon, and the difficulties such cases present are only appreciated by the experienced hospital surgeon. The patient is usually a bad subject for any operation—a big, fat woman of low vitality, suffering from chronic bronchitis and a weak heart, often a victim of chronic alcoholism, and exhausted with vomiting, pain, and loss of sleep. The hernia is usually large, with contents frequently firmly adherent to the thin sac and each other, and demands care and much patience in handling, so that the operation is of considerable duration. The mere administration of an anæsthetic to such people is fraught with danger, and when continued for an hour, or even two, adds greatly to the chances which militate against successful operation. We are strongly of opinion that in most of the cases of umbilical hernia it would be far better for the patients to undergo operation in the early stage of the condition than to run all the risks and discomforts of the mechanical treatment, with the occasional attacks of pain, obstruction, or incarceration to which they are liable. There are also always staring them in the face the risk of strangulation and the possibility of the need of an operation under unfavourable circumstances. In closing the opening in the linea alba in old-standing cases it is much more difficult to bring the edges together and keep them there than it is in the more recent ones; therefore the relapses after operation for strangulation will in proportion probably prove more frequent in this variety than in other forms of hernia or than will be the case after early operation for radical cure. For the notes of these cases we are indebted to Dr. S. Whillis, house surgeon to the Infirmary.

CASE 1.—A woman aged forty years, of the usual type, was admitted into the Royal Infirmary, Newcastle-on-Tyne, on March 30th, 1895, suffering from an umbilical hernia of eleven years' duration. It was the size of an adult head and quite reducible. The patient was much inconvenienced by its bulk. She had repeatedly suffered from incarceration of its contents. On April 3rd the sac and skin covering it were cut away, the opening into the abdominal cavity closed with quilted sutures of stout catgut, and the skin wound with fishing gut. No drainage-tube was used. The wound was dressed for the first time a week after operation, when the sutures were removed. Union took place by first intention without constitutional disturbance, and the patient left the Infirmary on April 23rd cured.

CASE 2.—A fat florid woman aged forty-nine years was admitted on April 20th, 1895, suffering from an umbilical irreducible hernia of eight years' duration. The tumour was at the time of operation as large as a full-sized football. The skin over it was discoloured and ulcerated. The woman was unable to get about and had suffered from repeated attacks of incarceration. On April 27th the operation for radical cure was performed, as described by Treves. The skin, sac, and omentum were removed. The umbilical opening was closed with quilted sutures of stout catgut, and the skin wound with silkworm gut. No drainage-tube was used. It was a long and severe operation, but healing took place by primary union without constitutional disturbance, and the patient was discharged on May 22nd cured.

CASE 3.—A woman aged fifty-two years was admitted on May 25th, 1895, suffering from a very large umbilical hernia. It was irreducible, and when she stood erect reached nearly to her knees. In the recumbent position the tumour was capable of being considerably reduced in size. Even then it remained a very large and formidable-looking tumour. The skin over it was extensively ulcerated, and below, where the hernia came into contact with the abdominal wall, there was considerable excoriation, as there was also in both groins. The ulcerated and excoriated skin emitted a foul-smelling odour. The woman was entirely incapacitated, and locomotion was almost impossible. She was very fat, and as she lay in bed the protrusion had to rest upon a pillow. She was kept in bed till the skin was rendered aseptic. On June 1st Treves operation was performed; the skin, sac, and adherent omentum were removed, weighing together nearly four pounds and a half. The opening into the abdomen was closed with thick catgut sutures, applied, not as in the other cases, vertically, but transversely. The skin wound was sutured in the same direction with fishing-gut sutures. No drainage-tube was used. The wound was dressed for the first time on June 8th, when the sutures were removed. Union took place by first intention without constitutional disturbance, but eighteen days after the operation a small abscess formed, probably from one of the buried catgut sutures. The patient was discharged on July 10th cured.

CASE 4.—A very big, fat woman aged forty-seven years

was admitted on June 11th, 1895, with an enormous strangulated umbilical hernia. There was a spot of gangrene the size of a shilling on the upper part of the tumour. The pulse was quick and the patient's general condition was such as to render any operative interference extremely unpromising. However, the sac was opened and was found to contain the greater part of the omentum and of the transverse colon, the latter being gangrenous. In addition, there were some coils of small intestine easily reducible. The whole of the gangrenous gut was cut away, and the ends were united with Murphy's button. The omentum, sac, and skin (a huge mass) were then removed and the wound closed. The patient died eight hours after the operation. A post-mortem examination showed that there had been no bleeding and that the button was in good position.

CASE 5.—A woman aged forty-three years was admitted on June 23rd with a large irreducible umbilical hernia, which was operated upon on the 24th. In this case the umbilical opening was closed transversely with buried sutures of silkworm gut and the skin wound in the same direction with silkworm gut. No drainage was employed and the wound closed satisfactorily. The progress of the case was interrupted by the formation of an ischio-rectal abscess, and the patient was not discharged till Aug. 10th, when she left the infirmary quite well, suffering no inconvenience from the buried sutures.

Remarks by Mr. PAGE.—Before the days of antiseptic surgery an operation for radical cure would have been looked upon in all the above cases as out of the question. There would have been no chance of success. In the fourth case something had to be done, and I quite believe, had the operation which was performed been done earlier, it might have been successful. Great pains were taken before and at the time of operation to render the whole surface of the abdomen aseptic, a solution of bichloride of mercury being the germicide employed for the purpose. After the final cleansing of the skin no chemical was employed, boiled water only being used for washing and flushing the wound. This is the usual practice in my wards, and union by first intention is the rule. As to the prospect of permanent cure in these cases of large umbilical hernia, I think it is very good. Speaking from a considerable experience, I consider the prospect of permanent cure to be as good as, if not better than, in the very large inguinal herniæ. The opening in the very largest umbilical hernia is seldom more than three inches in diameter, and generally it is less, nothing in comparison with the wound made for the removal of a uterine fibroid or solid tumour of the ovary.

Reviews and Notices of Books.

Nature versus Natural Selection: an Essay on Organic Evolution. By CHARLES CLEMENT COE. London: Swan Sonnenschein and Co. 1895. pp. 591.

THE object the author has in view in this work is to show that whilst there is strong evidence in favour of organic evolution, natural selection has no place in nature. Natural selection is based on the analogy believed to exist between the process of artificial selection and a process supposed to take place in nature. In the latter case the "struggle for existence" is said to be the selecting power, and it acts by securing the survival of the fittest. This is accomplished by a process of selection from those variations, however small, which are necessarily associated with sexual reproduction, leading by degrees to the transmutation of species. In opposition to this the author believes that if such a selective action did exist, other factors of evolution would anticipate its action in the transmutation of species now going on, and, further, that there is no definite proof of its action in the earlier stages of organic evolution. In his discussion of the subject Mr. Coe submits the theory of the transmutation of species by means of natural selection to certain tests, and asks, in the first place, whether there is a general consensus amongst scientific men in regard to the precise meaning of the term natural selection, since some hold that organisms are constantly varying in all directions, whilst others think that they vary only from a central line, from which a few variants diverge on either side; and some again maintain that they vary to a considerable, others to only a slight, extent. These variants are no doubt due to certain as yet unknown causes, but their preservation is due, Mr. Coe appears to think, to chance. Now, in the vast proportion of instances any variation is swallowed up and extinguished in what Mr. Francis Galton terms the regression to mediocrity. Hence, if a new and permanent variety, which is a step towards a new species, is to arise, some special modification should appear simultaneously in many individuals in a certain area. Romanes thought there was no warrant for this; Wallace, however, with far larger experience, holds that there is good reason for accepting it. Mr. Coe takes exception to the term natural selection, and shows that in reality two events are included under this term—viz., the survival of the fittest alone and the survival of the fittest and some not the fittest, and considers that these two things require differentiation. He notes also that the degree and constancy of the struggle for existence are estimated differently by different observers. He makes a good point of the alternative use of the terms "natural selection" and "survival of the fittest" as used by Wallace and Darwin, so that when a difficulty presents itself one or the other term may be employed, as may be most convenient. The argument advanced in favour of the struggle for existence is discussed at some length—viz., that since animals increase in geometrical ratio, any one animal or plant, if unchecked, would speedily overrun the world, and he meets it with the objection that for this to occur so large a series of other "ifs" must be admitted in regard to soil, climate, and other conditions as to render such multiplication almost impossible, and he holds that the output of life has been greatly over-estimated. On the other hand, he brings evidence which casts a doubt upon the constancy and severity of the struggle for existence between animals and plants of nearly allied or identical species, and shows that such competition is largely modified by the coöperation which so frequently obtains amongst the members of the animal world. He further maintains that the circumstance of one plant or one animal displacing another—as, for example, the brown Norwegian rat exterminating the black English rat or the willow displacing the watercress in the New Zealand rivers—although it may be employed as an argument for the struggle for existence and for the selection of favoured species, yet it by no means proves natural selection or the transmutation of a species by the selection of favourable variations which arise in connexion with sexual reproduction. He lays great stress upon the differences that exist between artificial and natural selection, the process in the former being strictly controlled by man with some definite object or objects in view, as beauty, strength, fleetness, or mere monstrosity; whilst in nature not only is there mergence of special characters in the general type, but death is apt to supervene and prevent the perpetuation of the special form or type that may have appeared—"the principle of Utility dominates Natural Selection with an iron rule"—and he thinks Mr. Romanes' assertion rash, that the death which takes place in nature must act with so much greater vigilance than is exhibited by the cattle breeder or the pigeon fancier, "for this death is often indiscriminate, the conditions under which the test is applied are often such that it would be rash to say whether the survivors were the fittest or the most fortunate." The only answer to this criticism, which is sound enough, is that the time is infinite, and the number of generations enormous, whilst now and again exceptional circumstances may occur favouring the preservation of life, as, for example, the comparative absence of enemies to the rabbits in Australia, where a favourable form might arise and be perpetuated. On the other hand, such chance would be greatly diminished in a region

such as that of the "tsetse" fly in the animals liable to be attacked by it. Then, again, the importance of the surrounding conditions or environment, admitted by Darwin in his later writings, is dwelt upon by Mr. Coe, especially in regard to colouration. Indeed, the chapter devoted to this subject and to instinct is one of the best in the book, the facts adduced and the argument founded upon them being well worthy of careful consideration by those who defend the doctrine of natural selection. Mr. Coe endeavours, and we think with much success, to show that under the expression "correlated variation," or the changes that take place in one part of the economy as the result of some alteration in another, a law or order of nature is implied which has or may have great influence in the permanent modification of the organism, and yet to which a proper value has not been assigned by the Darwinists. Mr. Coe makes a good point of the difficulties that surround the supposition of an animal or plant being thrown by the wind or waves on new and congenial soil, and so giving rise by successive modifications, under changed conditions, to a new species. When examined in detail such transportation is extremely difficult to conceive. It is not enough that one individual should be so transported, unless it were a pregnant female; and the necessity for appropriate food in the case of the animal, or of soil in the case of the plant, introduces almost insuperable obstacles to the survival of any given specimen. As has been well observed, even the potato has not become wild in any country, notwithstanding the large extent to which it is everywhere cultivated. Mr. Coe has brought together a large number of facts and has advanced some cogent reasoning in such a manner as not only to show that he has read and thought much upon the subject, but to demonstrate that whilst the theory of evolution by natural selection is supported by various facts, yet that it has weak points which it is well to expose, and which will require support and strengthening before that theory can meet with general acceptance at the hands of those best qualified to judge. He is very clever in pitting the statements of one observer against another, and in this way makes the Darwinists bear witness against themselves. The book as a whole is very interesting reading.

Archbold's Lunacy. Fourth edition. By S. G. LUSHINGTON, M.A., B.C.L. London: Shaw and Sons. 1895.

MORE than four years have elapsed since the previous edition of this well-known work, the editor having been unable to complete its revision owing to a serious personal accident. Since the third edition the Lunacy Act of 1891 (amending the Act of 1890) has been passed, and in the same year an important local Act for dealing with the management of the public asylums for the county and county boroughs of Lancashire. These, together with the Rules in Lunacy which were recast in 1892 and supplemented in 1893, have been incorporated in the work. Part I. consists of the Lunacy Acts 1890 and 1891, with notes and an introduction containing most of the principal provisions of the Acts and rules in a narrative form, together with the Lancashire Act and all the statutory rules and orders in force at the date of publication; but unfortunately this took place too early for the insertion of the new rules made by the Commissioners in Lunacy this year and their new regulation respecting mechanical restraint. As regards these two important matters the work under consideration is therefore unfortunately already out of date. Part II. contains all the statutes in force relating to criminal lunatics, preceded by an introduction defining what is meant by a "criminal lunatic," and giving an historical sketch of the law and a summary of the statutes now in force in a narrative form.

The appendix contains the Lunacy (vacating of seats) Act (1886) and the Idiots Act (1886). The notes appended to the clauses of the various Acts are very voluminous and contain most valuable information to those in search of explanation as to their meaning and cannot fail to be of use to any who are engaged in the treatment of persons of unsound mind. The times allowed for the due carrying out of the provisions of the Lunacy Acts, as, for example, "within," or "not more than," so many days or "clear" days are carefully computed and stated. As an instance, in Section 29 of the Lunacy Act (1890) the expression "not more than seven clear days," which often gives trouble to medical practitioners, is explained to mean seven days exclusive of the date of the medical examination and the date of presentation of the petition.

It is pointed out that Section 331 of the same Act is repealed by Section 2 of the Public Authorities Protection Act of 1893, and is replaced by Section 1 of that Act, by which an action brought by a person who has been detained as a lunatic against any person for anything done under the Act of 1890 must be commenced within six months (instead of twelve) after the act, neglect, or default complained of. The work is completed by a very comprehensive index.

A Manual of Botany. By REYNOLDS GREEN. Vol. I.: Morphology and Anatomy. London: J. & A. Churchill. 1895. Price *7s. 6d.*

THIS work is based upon the manual of the late Professor Bentley, and is intended to take its place. For making the book of convenient size it is to be issued in two volumes, of which this one (the first volume) deals with the morphology and anatomy of plants, while the second one is to treat of their classification and physiology. The section on morphology is divided into chapters on the general morphology of plants, morphology of reproductive organs, and of the fruit and seed; and the anatomical section includes chapters on the cell tissues, tissue systems, and structures of stem, root, and leaf. The text is tersely written and teeming with facts, to the principal ones of which the attention is quickly drawn by the plentiful use of italics. The book is all through most liberally illustrated by clear diagrams, many of which are original. It will be found to be a useful volume for the general student as well as for those preparing for examinations.

OUR LIBRARY TABLE.

The Origin and Nature of Man. By S. B. G. MCKINNEY. London: Elliot Stock, 62, Paternoster-row, E.C. 1895.—The author of this small book says that the modern student is sometimes inclined to fancy that the last word has been said regarding the origin and nature of man, which, he goes on to show, is very far from being the case, and, we may add, is not at all likely to be the case. The author remarks that "a teacher does not deceive us when he says that protoplasm is the physical basis of life, for it is a fact that we know nothing of life, except as it is revealed by protoplasm. The unfounded and unscientific assumption comes in when it is added that the protoplasm is the formative power of living beings. The matter which is formed cannot be the formative power, and the teacher of physical science only refers to the material when he speaks of protoplasm." The book is of a metaphysical nature; it succeeds in showing the difficulty of the problems by which we are confronted and how inadequate is our knowledge to solve them; but we may fully admit all this and still point to the fruitful results which we have attained by scientific and inductive methods of inquiry and experiment. As members of the medical profession we have to deal with living beings, and, as everybody admits, life introduces an element which is unfathomable. We know a good deal of the anatomy and physiology of a cell; but, let the physicist condition his forces as he

may he cannot make a cell or explain the mystery of the powers and properties inherent in it. We know uncommonly little of the how and why of many things—indeed, even where life is not present.

Dialogues of the Day. Edited by OSWALD CRAWFURD, with numerous full-page illustrations. London: Chapman and Hall, Limited. 1895.—A revival has taken place of late of the method of conveying stories in the form of crisply written dialogue. "The Dolly Dialogues" afforded a very successful example of this style of literature. The author enjoyed some advantages over the writers of these dialogues in that he was able to sustain the reader's interest by maintaining a continuity in the arrangement of his incident and material, which he touched with a light hand and managed to set forth with vivacity and humour, and in a tone of banter or amusing cynicism and playful irony. The present book consists of short and light sketches illustrative of the manners and customs, the foibles and frivolities, and the situations presented in modern society, furnished by numerous contributors writing independently of one another. Speaking generally, they are neat and epigrammatic and interspersed with little touches of satire, pathos, or drollery, and tricks of mental surprise which stimulate the intellectual appetite and imagination by their suggestiveness—and this is just what they should be. The dialogues are of very unequal merit, some of them being comparatively poor in conception and construction, but none of them are absolutely dull, and several are excellent and pleasantly stimulating. They require to be taken in small quantities at a time, like a savoury at dinner, to appreciate their flavour, but in that way they will be found an agreeable and light mental diversion for those convalescing from sickness. It goes without saying that the dialogues from Anthony Hope's pen are smart and piquant, but there are others which are happily conceived and agreeably written, and exhibiting the necessary *verve* and vivacity to make them good reading. We may refer to those by Miss Violet Hunt, "The End of Beginning," for example; to the smartly-conceived incident in the deftly-handled contribution by S. Squire Sprigge, "An Unrehearsed Effect"; to "The Girls he left behind Him," by Mrs. Alfred Hunt; the "Choosing a Ball Dress," by Miss Clara Saville Clarke; "Cherchez l'Homme," by A. N. Stainer, and others, as the reader of the volume will discover for himself.

Bad Air and Bad Health. By HAROLD WAGER and AUBERON HERBERT. London and Edinburgh: Williams and Norgate. 1894.—This essay, which originally appeared in the *Contemporary Review*, and has been somewhat amplified in the present reprint, is, in the words of the opening sentence, "a warning against the careless way in which the mass of people, poor and rich, ignorant and learned, allow the air of their living-rooms to be in an impure condition." The subject is presented in a manner which may be easily understood by the general reader, and the arguments are in a great many places enforced by quotations from eminent physiologists and sanitarians—a token that the authors have confidence in medical science, although they emphatically express their opinion (p. 19) that "there must be no State power of any kind placed in the hands of the medical profession." Virulent organic effluvia are throughout assumed to be the principal cause of the unwholesomeness of rebreathed air, and the authors criticise at some length the conclusions of Dr. J. Haldane and Dr. J. Lorrain Smith, whose experiments (*Journal of Pathology*, October, 1892, February, 1893) seem to show that the organic matter of the breath is comparatively innocuous. The final summing-up is: "Live as much as you can with open windows, wearing whatever extra clothes are necessary." In several respects the arrangement and mechanical execution of the book are indifferent.

A Trip to Chicago: What I Saw, What I Heard, What I Thought. By MARTINDALE C. WARD, M.D. Aberd. Glasgow: Alex. Malcolm and Co., 34, Ann-street. 1895.—This is a highly entertaining account of a month's experience in the United States during the Chicago Exhibition of 1893, including a brief visit to Canada. The author writes well, observed much, and acknowledges that he thoroughly enjoyed himself; his book is full of engravings and information and does not contain a single dull paragraph. The sea journeys out and home were between Southampton and New York; the principal cities visited (other than New York) were Montreal, Toronto, Chicago, Pittsburg, Buffalo (on the way to Niagara Falls), Newark, Philadelphia, and Washington. Dr. Ward briefly mentions that he met several of his medical brethren, diverging, however, into a few details respecting Dr. Oronhyatekha, a Canadian Mohawk chief, who studied for some time at Oxford University and subsequently returned to Canada, where he graduated as M.D. and practised medicine for some years.

Wright's Improved Physicians' and Surgeons' and Consulting Visiting Lists. 1896. Bristol: John Wright and Co. London: Simpkin, Marshall, Hamilton, Kent, and Co., Limited.—These lists are in two forms—one with so many pages assigned to a month, and another distinguished as the perpetual form. In the latter, pages for visits are put up in the *perpetual* form, the particulars of date to be filled in by the practitioner at the top of the page. There is a convenience in being saved the trouble of making out a fresh list every week as in other lists, but many prefer this to a list running on for a month or a longer time. The books are neatly bound in fine leather, and a great variety of useful tables, convenient for ready reference by the busy practitioner, are given at the beginning of either volume.

The Cause and Prevention of Cholera. By E. H. HANKIN, M.A., Chemical Examiner and Bacteriologist to the North-Western Provinces and Oudh, Fellow of St. John's College, Cambridge. Second edition. Agra: Printed at the *People's Herald* Press. 1895.—This is a second and enlarged edition of Mr. Hankin's little pamphlet. In a tract of this nature (mainly intended for the instruction and guidance of the natives of India) it is inevitable, as its author says, that some things should be stated dogmatically, but evidence in favour of each of the opinions he has expressed will be found in papers which he has already published or is about to publish. Mr. Hankin accepts the comma bacillus always associated with cholera as its cause, and he briefly tells us why and how it gets into water, and the conditions under which it grows and multiplies or dies therein. He deals with the disinfection of wells and with several of the native customs and habits in a useful and discriminating way, and touches upon the various methods in which the micro-organism may gain access to the body and how best to guard against it. The pamphlet is written in an eminently simple, clear, and practical style.

A CHOLERA HOSPITAL FOR CARDIFF. — Mr. Thompson, of the Local Government Board, held an inquiry at Cardiff last week in reference to the application of the town council for leave to borrow £2450, the cost of erecting a cholera hospital on the Flat Holm island in the Bristol Channel. The existing building is a shed capable of holding six beds, and three years ago, when cholera was prevalent on the Continent, a large marquee was erected to afford greater space. The expenses will be borne by Cardiff and Barry. The new building would comprise two six-bed wards and a nurse's room, with the requisite sanitary arrangements and a crematorium. A farmhouse exists on the island which would be used as an administrative block, and the small existing ward would be used in case of necessity as an isolation or auxiliary ward of the proposed new pavilion.

Analytical Records
FROM
THE LANCET LABORATORY.

MARVINO GRAPE WINE.

(DOWDEN AND CO., LTD., ST. PAUL'S-LANE, BOURNEMOUTH; AND 8 AND 9, ST. MARTIN'S-LANE, LONDON, E.C.)

WE have no doubt of the genuineness and wholesomeness of this wine, despite its very moderate price. It is produced, it is said, from imported grapes, and can be sold at the rate of 12*s.* per dozen (quarts). It possesses a peculiar, somewhat aromatic flavour, is light in character, and well suited for use as an ordinary wine at mealtime. Analysis gave the following results: Alcohol, by weight, 10·92 per cent.; by volume, 13·52 per cent.; proof spirit, 23·70 per cent.; extractives, 2·32 per cent.; mineral matter, 0·17 per cent.; total acidity, reckoned as tartaric acid, 0·74 per cent.; and sugar, 0·28 per cent. As will be seen, it is commendably free from excess of sugary constituents and is not unduly acid. In short, its composition is analogous to that of a sound and genuine Burgundy of a mild and agreeable type.

PORTABLE SOUPS.

(THE PORTABLE FOOD COMPANY.)

These preparations are intended as portable rations for soldiers in the field or for travellers or explorers, where vegetables are scarce and transport difficult. We have received three kinds—(1) consolidated mulligatawny, (2) consolidated Scotch broth, and (3) consolidated pea-soup. Each is contained in a tin "cartridge" about two inches long by about an inch and a half wide, open at both ends. Prepared in the manner directed a really palatable soup is obtained, the appearance, taste, and composition of which are seemingly identical with freshly-prepared soups of every-day formula, except that they contain, of course, desiccated vegetables. They afford, therefore, a convenient and acceptable resource for food under the circumstances already indicated.

KOCIDE.

(THE KOCIDE CO., CLARENCE-ROAD, LEEDS.)

This is a brown powder possessing a disagreeable but not very powerful smell of tarry matters. It is for the most part insoluble in water, the insoluble portion serving probably as a suitable absorbent of the active agent, whatever that may be. It is acid in reaction and contains much sulphate; ether extracts a trifling amount of yellow oil, and on submitting the powder to dry distillation a small quantity of oil came over. In the case of good carbolic powders we should expect to expel under these circumstances at least 10 per cent. of tar acid. Kocide is claimed to be a powerful germicide, but we do not gather that any evidence based on bacteriological experiment has been obtained on this important point.

VARIOUS MEDICATED SOAPS.

(D. AND W. GIBBS, CITY SOAP WORKS, E.C., AND ABBEY CHEMICAL WORKS.)

According to a series of tests made in our laboratory these soaps may be commended, not only because of the excellent quality of the soap employed, but because also of the fact that they are reliable in regard to the various therapeutic agents contained in them. We have received ten in number, as follows:—1. Sulphur soap (10 per cent. sulph. præcipitat. B.P.). 2. White birch tar soap (10 per cent. pix liquida e betula alba). 3. Ichthyol and tar soap (3 per cent. ichthyol sulph. amm. and 5 per cent. pix. liq.). 4. Eucalyptol soap (5 per cent. ol eucalypti rectif.). 5. Sulphur, camphor, and Balsam of Peru soap (5 per cent. sulph. precipitat. B.P., 5 per cent. spiritus camphoræ B.P., and 3 per cent. Balsam of Peru). 6. Corrosive sublimate soap (½ per cent. hydrarg. perchlor. B.P.). 7. Borax, naphthol, and sulphur (freckle) soap (5 per cent. natr. biborac., 2½ per cent. naphthol pur., and 10 per cent. sulph. præcipitat. B.P.). 8. Boracic acid (shampoo) soap (5 per cent. acid. boracic. B.P.). 9. Salicylic acid and sulphur soap (3 per cent. acid. salicyl. B.P. and 10 per cent. sulph. præcipitat. B.P.). 10. Carbolic acid ("surgeon's") soap (20 per cent. pure carbolic acid crystals). Careful search for excess of alkali was attended with negative results except a slight indication in No. 7, which contains biborate of soda. The composition of the corrosive sublimate soap (No. 6) is not so uniform as it might be, since patches of the perchloride occur across the surface. They become more obvious when they blacken by exposing the soap to the vapour of sulphide of ammonium. These soaps one and all, however, are without the slightest injurious action upon the skin, while doubtless they act effectually in accordance with their medicated composition.

AMMONOL.

(THE AMMONOL CHEMICAL CO., NEW YORK.)

Ammonol is the name given to ammoniated phenyl acetamide. The ammonia is evidently loosely combined, since a sample of the slightly yellowish amorphous powder which was submitted to us smelt strongly of ammonia. It accordingly behaves as a stimulant as well as an antipyretic and analgesic, thus differing from the almost numberless coal-tar derivatives and antipyretics with which modern pharmacology is deluged. Ammonol has been used chiefly in the relief of rheumatism and neuralgic pains, and in the treatment of the sequelæ of alcoholic excess. The presence of ammonia in a more or less free state gives it additional properties as an expectorant, diuretic, and a corrective of hyper-acidity. Ammonol is also prepared in the form of salicylate, bromide, and peptonate.

ADEPS LANÆ, N.W.K.; PURE NEUTRAL WOOL FAT.

(THOMAS CHRISTY AND CO., 25, LIME-STREET, E.C.)

There are certain important features about this particular preparation which render it of additional value as an emollient and basis for ointments. Adeps lanæ, N.W.K., is specially refined, and consists of pure neutral wool fat minus the harder fatty constituents. Its melting point is therefore lower, and the preparation is consequently more soft and supple, so that it will absorb water if required to the extent of three times its weight, and is readily absorbed by the skin; moreover, it is a non-rancifying fat and perfectly neutral in reaction.

DAVICINI'S PURE STERILISED MILK.

(C. S. COX AND CO., NEW YORK, AND 4, FENCHURCH-AVENUE, E.C.)

On analysis this milk proved to be only of moderate quality. Thus it contained 3 per cent. fat, 9·46 per cent. of non-fatty solids, and 0·7 per cent. of mineral matter. The method of sterilisation is undoubtedly satisfactory since the milk was in an excellent state of preservation, and its flavour was good and freer than is usually the case from "boiled" taste. The composition of this otherwise excellent milk would have been more satisfactory if the proportion of fat had been greater, the amount found being close on the line that separates a poor from a rich milk. Objectionable preservatives were absent.

WHOLE MEAL WHEAT FLOUR.

(R. VARNDELL, WAVERLEY MILLS, FARNHAM, SURREY.)

We have submitted this flour to examination and find, in accordance with the description, that it consists of finely ground whole meal with only a part of the bran present in a comminuted state. It contains an excellent proportion of albuminous principles, as can be easily ascertained by suspending the flour in water in a muslin bag, when the starch washes away, leaving the gluten and bran behind. It is evidently prepared from wheat of superior quality, its flavour is rich, and its aroma good.

THE LANCET.

LONDON: SATURDAY, SEPTEMBER 28, 1895.

THERE seems to be little fear that for some time to come those who are engaged in the working out of the details of new methods of treatment will, in spite of the fact that they are doing so much, find their occupation gone. Of this we have abundant evidence in the account of the Preparation of Antirabic Serum and the method of Determining its Strength by Professor TIZZONI and Dr. CENTANNI, the conclusion of which appears in our present issue. This investigation is of special interest since, should the efficacy of the serum treatment of rabies be proved, new factors become available for consideration and application to the method as a whole, and the scope of the application of the treatment will be enormously increased.

As early as 1889 BABES and LEPP appear to have indicated the possibility of obtaining some protection against rabies by injecting the blood of an animal inoculated against rabies (by PASTEUR'S method) into one previously or afterwards infected by the virus. Although much work has since been carried out on the same lines there was little practical outcome from it all until BEHRING, followed by ROUX and ARONSON, had worked out the method of treating diphtheria and tetanus by means of antitoxic serum. The experience gained by TIZZONI and his colleagues in the preparation and use of anti-tetanic serum has now, however, been applied to the treatment of rabies by a somewhat similar method; and if all the results recorded are confirmed by fuller and independent observations there can be little doubt that a great advance has been made in the treatment of hydrophobia. Instead of carrying out the greater part of the preparation of the antidote within the body of the patient by a process of "vaccination," TIZZONI and CENTANNI follow the usual plan of preparing this substance in an animal from which it is conveyed to the animal to be treated in the blood serum as a vehicle. In place of using PASTEUR'S method of protective "vaccination" for the animals from which the serum is to be obtained, they, by a process of peptic digestion, attenuate the virus to be used. What the exact action of this digestion may be is as yet somewhat doubtful; whether it diminishes the activity of the poison-secreting organisms, kills them, or "attenuates" the ferment produced by them is a subject for careful experiment. At all events, the activity of the virus is said to be so far modified that considerable doses may be injected at a comparatively early stage of the process, and animals that have been so injected withstand the action of the more virulent virus within a comparatively short period. This part of the process is carried out upon sheep, which may be "vaccinated" again and again. These animals always retain a certain immunity, which can be increased from time to time by fresh injections of virus, the activity of the serum corresponding to the amount and virulence of the virus injected. In these points the method of obtaining the serum is much like that by which the tetanus and diphtheria antitoxic serums are prepared. This serum, when mixed in definite quantity in a test-tube with a lethal dose of canine or fixed virus, and then injected into a rabbit, so neutralises the poison that neither is there any increase in quantity of the virus nor are the slightest signs of rabies developed, even though the animal be kept under observation for four or five months. More important still, when an inoculation with a lethal dose of the poison is made, a comparatively small quantity of the serum serves to neutralise its effect if injected at once, and even if delayed until the end of the first half of the incubation period the amount required to be given has only to be multiplied some six or eight times. In this respect the serum has great advantages over those used in the treatment of diphtheria, in which the dose has to be multiplied some 20 or 100 times, and of tetanus, in which the increase of the dose must amount to from 1000 to 2000 times in the later stages of the incubation period. Leaving out of consideration the prophylactic properties of this serum, which could only be of use in the case of those who are constantly in contact with dogs, the success of the experiments as regards early treatment is from a practical point of view of very great importance. It is possible, by drying, to prepare a "permanent" form of this serum which will, if kept from air and light, remain active for a long period. It is very portable, is readily dissolved, and may be used by anyone who is capable of sterilising a subcutaneous injecting needle and syringe. The treatment, therefore, can be commenced almost as soon as the patient has received the bite, as it is not necessary that he should leave his home or his own medical attendant, with the result—and we assume that these experiments are to be fully relied on—that the patient at once receives a quantity of the antitoxic material, which under the PASTEUR method could only be manufactured in the body of the patient himself, and then in quantities sufficient to neutralise the infective material, say, after the second half of the incubation period.

One other most important point brought out by these researches is that, just as in the case of tetanus poison, the virus has a distinctly selective action; it seems to exert its full effect on the central nervous system or on some parts of it. Bearing this fact in mind, and injecting the doses of serum in special positions, it is found that it is necessary to inject much smaller doses of the serum under the dura mater of the brain than if the injections are made into the substance of a nerve; whilst when the injection is made subcutaneously a still larger dose is necessary than when the serum is injected at either of the above sites. It is evident that the serum must act in one of two ways. It may act as a direct chemical antagoniser of the virus. The results of other experiments, however, appear to put this out of court, and there remains the theory that the serum so acts upon the nerve centres, probably the cells, that with its aid they are able to carry on their functions in the presence of even considerable quantities of virulent material. Where the serum is injected subcutaneously a large proportion of the active material is wasted in fortifying cells which do not really need to be protected, whilst the nerve cells only participate generally in the benefit conferred. When

the serum is injected into the substance of a large nerve the protective agent at once finds its way into channels which communicate fairly directly with the cerebro-rachidian lymph system, so that a larger proportion of the active protective agent comes into direct contact with the central nervous system. When, further, a subdural injection of serum is made we have the most direct contact possible. Just those parts which are in need of strengthening are brought into contact with the protective material, and the best results are obtained. TIZZONI and CENTANNI claim that they have worked out all these different points and that their results are now beyond question. Allowing for some, or even a considerable, amount of bias in the matter, there would still remain evidence, we think, of sufficient value to encourage them and others to persevere in this work. At present cases come up for treatment which, from the severity of the wounds and the amount of virus left in them, we can never hope to cure by the PASTEUR method, valuable as that method is when the cases are brought under treatment sufficiently early, and when the patient does not succumb too rapidly to the virus left when the bite is made. Some of these cases, if the experimental results are accurately recorded, would undoubtedly yield to the serum treatment, especially as that treatment can be commenced with the least possible delay. One point more must always be remembered when reading this paper and in determining the value of the results obtained and recorded by the authors. BEHRING, in determining the strength of his antitoxic serum, is able to make artificial cultures of his poison-producing organisms, after which he has only to separate the poison from these organisms in order to obtain a poison of constant strength which has no power of reproducing itself. TIZZONI and CENTANNI, on the other hand, are handicapped by the impossibility of making artificial cultures of their rabic virus, whilst, unless the process of peptic digestion or some similar process is carried out before the virus is injected, this material remains capable of reproducing itself for some considerable time after the injection has been made. Altogether, the paper is full of suggestions. Much of the work has evidently been carefully done, and if we cannot accept all the conclusions arrived at it is because the statements are so far reaching and important that it would be unfair, even to the investigators, to accept them without very full and independent corroboration.

As we are at this period much concerned with educational regulations and meditating on the best use that medical students can make of their "hasting days" of opportunity the time is fit for giving a little attention to the arguments in favour of devoting six months of the fifth year to pupilage under a general practitioner. The first thing to be said in favour of this use of six months is that it is in accordance with the regulations of the General Medical Council. The following is the regulation which will be found on page 592 of the Students' Number of THE LANCET: "4. The fifth year should be devoted to clinical work at one or more of such public hospitals or dispensaries, British or foreign, as may be recognised by any of the medical authorities in Schedule A of the Medical Act (1858), provided that of this year six months may be passed as a pupil to a registered practitioner holding a public appointment or possessing such opportunities as shall be satisfactory to the medical authorities." This regulation deserves the serious attention of every student who has come to his fifth year and is within measurable distance of the personal responsibilities of private practice. It is one thing to act as a clinical clerk or a resident physician in a hospital, and have all one's work revised and checked by the physician or surgeon in charge, and quite another thing to have all the responsibility of diagnosis and treatment in one's own hands. Besides, the class of cases is different. Private practice varies much from hospital work, and it is no more possible to learn its nature and general management from hospital practice than it is to learn the details and requirements of hospital practice from the routine of general practice. We are without definite information as to whether much or little use is made of this half of the fifth year by medical students. But the whole regulation is so good and so well expresses the views of those who have studied the defects in our present system of medical education that we think it desirable to direct the attention of advanced students to its suggestions.

The great purpose which the Council had in framing the resolution was evidently to emphasise the fact that the main use of the fifth year was to concentrate all previous learning into practical channels and to bring the student into contact with actual living cases of disease. Work is to be exclusively clinical. The student is to get it where he can, in foreign hospitals or home ones, and in the practice of registered practitioners. There is one condition attached alike to hospitals and practitioners—that they shall be approved by the medical authorities to whom the candidate applies for a qualification. The condition is a reasonable one. The regulation is the only one of the regulations of the General Medical Council which explicitly recognises the registered practitioner, as such, as a coöperator in the great process of medical education. It is otherwise in the law. In the training of a solicitor articled pupilage is the principal part of education. In the process of medical education it used to be a prominent feature, but it is no longer so. This regulation is the only recognition by the Council of the principle that was carried far in the system of medical education that ruled up to forty years ago. But general practitioners should take note of the regulation and of the conditions it includes. It should be an object of ambition in every registered practitioner whose practice or whose appointments are favourable for the purpose to take pupils—i.e., advanced medical students—and initiate them in the art of seeing patients and detecting and curing their diseases.

The General Medical Council did well, we think, to leave to the examining bodies the recognition of the fitness of both hospitals and general practitioners as sources of medical instruction. But there is no reason to think that the medical authorities will be illiberal in recognising the claims of any medical man whose appointments or whose standing in the profession are

such that he is likely to be able to give students opportunities of seeing common diseases in their continuity and of watching their treatment. Practitioners may well be willing to accept pupils who are of the standing implied in the regulation. They will become teachers of medicine in an important sense by so acting. They will derive benefit as well as confer it. They will learn from such pupils as well as teach them. They will keep in touch through them with the latest improvements in diagnosis and treatment, and so preserve that freshness of mind which is the mark of a good practitioner and the great condition for preserving interest in work that is otherwise apt to grow monotonous and mechanical. But it is the student himself who should be most benefited by this limited pupilage. Supposing him to choose his principal well, the advantage must be great in every aspect. Every detail of his principal's work will be a lesson to him: the method of seeing patients; the dispensing arrangements, supposing the practitioner to have such; the common diseases, which so largely constitute medical practice, and the ready means of recognising and relieving them; the detection and notification of infectious diseases; the personal knowledge of patients and their families, so different from the casual intercourse with unknown strangers in hospital practice; vaccinations; labours; clubs; private patients of every rank treated with equal consideration; and the social position and importance of his principal—all these will be lessons that will be eminently helpful to the student in the early days of his own practice. Even the errors of his principal will not be without their advantage to him. It remains with students themselves to use the facilities afforded by this regulation or to disregard them and to commence practice in that ignorance which has made many men, who would shine in the class-room and be able assistants in the operating theatre, feel awkward in the commonest emergencies. Hospital practice can only be learnt in hospitals, and private practice from a good registered practitioner, and six months are all too short for the latter lesson.

As the season draws near for sufferers from phthisis to go abroad for the winter it may not be inopportune for us to remind the profession, as we have often done before, of the responsibilities which the medical adviser has in this matter, and of the dangers which may attend advice given in any routine or offhand fashion or without adequate knowledge. Climatic treatment is a large subject which is beset with peculiar difficulties and needs special study if it is to be applied with discrimination and effect. It means much to the patient, is usually productive of decided benefit or injury, and the failures of such treatment often entail much misery on the patient and the patient's friends, and a corresponding amount of discredit upon the medical adviser. There are few catastrophes in practice more deplorable than to send a patient suffering from advanced or subacute phthisis on a long sea voyage or to some distant health resort only to perish miserably far from the comforts and consolations of home. Such a result may no doubt be in some cases unavoidable and may be reckoned among those "calamities of medicine" which we must all be prepared to face. But, on the other hand, there is no reason why a result of this kind should be anything but the rare exception if the medical adviser is thoroughly well posted in the principles which should regulate this department of practice. It is only fair to point out that the fault not uncommonly rests with the patient rather than with his adviser. Some patients go abroad without medical advice or in direct contravention of it, and it need hardly be said that it is most unjust to hold the profession responsible for the results which follow.

The first question which the practitioner has to consider in dealing with phthisical patients anxious to try a change of climate is whether any change is desirable or whether the patient should not rather remain at home. It is comparatively easy to define the cases in which the patient may be freely advised to try climatic change and those in which he must be dissuaded from what is a hopeless venture; the real difficulty is with the cases that are on the border-line. We may say with confidence that if the amount of disease is small, localised, and not progressive; if there are little or no wasting and fever; if the general health, and especially the integrity of the digestive system, is well maintained; if there are no complications; and if the patient is of a cheerful disposition and not averse to the prospect of foreign travel—then there can be little hesitation in advising climatic change, and the only question will be to decide what change would probably be most beneficial. On the other hand, if the damage to the lung is extensive and progressive, if there are much wasting and fever, if there are marked constitutional breakdown and serious complications, then climatic change must in the great majority of such cases be forbidden, or, if permitted at all, only to a limited extent and merely as a palliative measure. These principles are, we think, clear and do not require argument or proof. The difficulty, as we have said, is chiefly with the intermediate cases. What amount of pyrexia or wasting should be held to contra-indicate climatic change in a case otherwise calling for it? In a doubtful case shall we attach more weight to the nature of the local lesion or to the constitutional symptoms? How far shall we allow the family history to govern our decision, or the existence of special symptoms, such as hæmoptysis? We do not imagine that these questions can be answered very definitely, and much must always depend upon the practitioner's insight, common sense, and capacity for penetrating to the real nature of the case before him; but we may throw out a suggestion or two. The medical adviser called upon to deal with these cases will seldom regret relying to a considerable extent upon the thermometer. An evening temperature that is persistently above 100° F. should, as a rule, be held as a contra-indication for distant travel. Anything like severe pyrexia must be regarded as an absolute contra-indication. The practitioner should, also, attach much weight to the known history of the case, and should therefore be much on his guard with cases that he sees for the first time and of which he has no precise history. A case may present a very small local lesion, and yet the temperature or the general constitutional enfeeblement may point to the

probability of a rapid progress of the disease, and hence to the futility of climatic change. Family history may also be important in this regard, but it is difficult to appraise it correctly. It is probable that its importance has been often over-rated. The stage of the disease is, in our judgment, of much less importance than the amount of lung involved and the type of the case. Thus, a case in the first stage with progressive lesion and much fever may be wholly unsuitable for climatic change, whereas a case with a single cavity, where the constitutional state is good, often does well. Much weight should be attached to the patient's capacity for taking and assimilating ample nourishment. The maintenance of nutrition is the keynote of the successful treatment of phthisis, and the prognosis may be allowed to be materially affected by the state of the digestive system. Hæmoptysis or night sweating may be proper grounds for delay, but do not in themselves constitute any contra-indication for climatic change. It is not true that patients are more prone to hæmorrhage at the high altitude stations or at sea than they are at home.

Every suitable opportunity should be taken of impressing upon patients that the proper time for climatic change is when the disease is threatening rather than actually declared. It is, we conceive, the simple fact, deplorable as it is, that at present in the vast majority of cases the proper time for applying climatic treatment with effect is allowed to pass, and that treatment is commonly reserved for a stage of the disease when its success is always precarious and its failures are many. On the other hand, its success in the early incipient stage of the malady is often great and brilliant. Early diagnosis is of supreme value in this matter and cannot be too earnestly insisted upon. We have not space in this article to enter upon the second part of the subject—viz., climatic change being deemed suitable, what shall be the nature of that change? This is a very large subject on which it would not be possible to say anything of value with sufficient brevity. The sea voyage, the high altitudes, and the dry inland plains like those of South Africa now divide the title of supremacy. They are all most useful in their place, and we are gradually learning to distinguish the cases most suitable to each.

Annotations.

"Ne quid nimis."

IS THE QUALITY OF BREAD DETERIORATING?

IF the only object of the Bakers' Exhibition held this week in the Agricultural Hall were to place before the public a good, honest loaf of bread, we should look upon it as an annual benefaction of no mean importance to the community. We have no desire to underrate the value of trade exhibitions; indeed, we do not doubt that they have a bracing effect upon business; moreover, traders are brought together who exchange ideas, and they may derive the advantage of seeing new machinery, appliances, and articles necessary for the advancement of their business. All this is right and proper in its way, but are the interests of the public equally studied? Methods may be improved so far as an increased economy to the manufacturer is concerned, but does the consumer really derive any benefit from this, or is the product any the better? In the case of bread, for example, we are not the last to appreciate the improvements effected in the details of its manufacture, as instanced in the introduction of ingenious machinery by which from beginning to end the loaf is untouched by human hand; but all this is no guarantee that the loaf has been made from honest materials. Machinery can incorporate very inferior wheaten flour or potato flour, alum, and indifferent and perhaps foul yeast into the composition of the dough with greater subtlety probably than human hands; it may even produce a more attractive loaf, an apparently larger or bulkier loaf, lighter in texture, with a tempting glaze, but this speaks nothing, or perhaps a good deal, of the quality or the nature of the interior. Is it not the experience of most bread-eaters—and who is not a bread-eater?—that the average bread supplied by the London baker, the tin and the cottage loaf, for example, bears no comparison in regard to flavour and nutritive qualities with the unpretending home-made bread made with flour the pedigree of which is known? And yet, given the same materials—flour of good quality, preferably English grown, pure yeast, and common salt—why cannot the baker produce with all the new and improved appliances at his disposal a loaf which shall possess that delicious wheaten and biscuit-like flavour of real home-made bread? It is a serious matter, because, doubtless, a very large proportion of the public do not eat bread in the quantity that they should because of the indifferent flavour and of the non-appetising character of the stuff largely sold in our bakers' shops. They lose, therefore, all the excellent dietetic advantages of one of our most complete foods. We fear the public are much to be blamed; they persistently demand a chalky white, anæmic loaf—one which has the aspect of offering a "lot for the money," but made, perhaps, from an inferior foreign flour employed to make the loaf larger. As long as this sort of demand continues there is no doubt that the supply will be equal to the occasion. The remedy, however, rests with the consumer; let him demand bread made with honest and the best materials, let him obtain a guarantee from his baker that it is made with superior and really nourishing wheat, and not with the poor stuff that is imported in large quantities from abroad. Then he may really enjoy his daily bread and return with delight to a source of sustenance which ministers to his bodily needs far more completely than any other food, because if the wheat from which it is derived is of good quality, of unimpoverished and unstunted growth, it repairs the bony structures, builds up the tissues, and supplies healthy and invigorating materials to the blood. Evidently Nature had an important object in view when she endowed wheat with an attractive flavour, and it is nothing short of an outrage to take this property away and to attenuate its nourishing qualities by sophistication or other detestable means. Last week we had occasion to comment upon the fraudulent practices which recent inquiry has shown to exist amongst the wholesale grocery trade; these are bad enough, but, at least, let us demand bread that is worthy of the name of the "staff of life."

THE SEXUAL NOVEL.

THERE has of late been a tendency for writers of fiction to produce works treating almost entirely of sexual subjects; in fact, the so-called "woman novel" is concerned with nothing else—unless, indeed, it be subjects that grow out of the original one, like hereditary syphilis. These books are generally bad, immoral, wrong-headed, and physiologically incorrect. One of the silliest of its class is "The Woman who Wouldn't." We received a copy of this work for review, and almost coincidently with it a little book called "Baby Buds." We give the authoress of the latter every credit for wishing to do her best

to explain to children a subject which needs no explanation, and about which they will learn quite soon enough; but we wish to point out that Opalia, the fatuous heroine of "The Woman who Wouldn't," is just the sort of character that would be produced by being nourished on "Baby Buds" in childhood. And what does the authoress of "Baby Buds" do? She is talking to a child aged four and trying to explain "where our new little baby came from." After a great deal of beating about the bush and talking about plants and pollen she says: "Mammals or birds have no need of bees or moths to transfer the pollen substance from the male to the female, for they can approach one another for that purpose. ..... Indeed, they do so approach at certain times that the ovules of the female may receive some of the pollen substance. How this fully comes about you can hardly understand until you are older." This, of course, is quite true; then what was the use of beginning, and to a child aged four, too? The "woman who wouldn't" married her Alan "only in church," as she explains, and on their wedding night she says, "I trust you so much that I want you to come to my room and help me to un——" dress, she was going to say. ..... Then she added "pack." Eventually, as might have been expected, her husband took up with another woman, and then the woman who wouldn't became the woman who would and did. It is undesirable that the writer of "Baby Buds"—evidently a well-meaning, refined, and delicate-minded woman—should try to explain matters to her children at such an early age; those of the age of twelve or thirteen may be told certain things. With regard to works of the class of "The Woman who Wouldn't" it is a pity for any writer to sit down and write outside of his or her environment. The stories in the Decameron, the various Contes, the Restoration comedies, and the Georgian novel are amusing and wholesome compared with many of our nineteenth century writings. But they were written in the thoughts and manners of the time, without any idea of advertisement. Their authors had no missions or high moral aims, and these works, "Pamela," "Joseph Andrews," "The Country Wife," and others, will live when the women who didn't and couldn't and wouldn't are totally forgotten.

SEATS FOR SHOP ASSISTANTS.

MANY years have elapsed since it was first proposed to provide seats for the use of shop assistants, and the proposal has not been made in vain. Its result, nevertheless, has been by no means equal to the reasonable expectations of its supporters. A number of large firms throughout the country have, it is true, afforded their employés this very moderate concession to the demands of health and convenience. It is probable, notwithstanding, that at least as many have made no such provision. Yet the project is in itself entirely reasonable. It is no measure of mere indulgence, but a serious answer to the constantly repeated warnings of experience. It has been proved over and over again that the still common practice which obliges young people to stand about hour by hour throughout weeks and months of a business life is injurious to health. No quadruped—certainly not the biped man—is capable of safely enduring such prolonged neglect of his physical necessities. The whole order of nature teaches the same lesson. Every organ and every tissue submits to regularity and by frequent rhythmic change alternates energy with rest. It is absurd to pretend that a like system of reliefs is incompatible with business. With method and practice any difficulty could be overcome and a habit be acquired which would directly promote alertness by preventing overstrain. Seats behind the counter are not merely the comfort and the privilege of assistants. They constitute an effectual safeguard of the interest of employers, since they secure for these a service more spontaneous in proportion as it must be in the very nature of things more capable. It is hardly necessary to draw a clinical diagram of the evil consequences of long-continued standing. Most educated persons know enough of the structure of their bodies to teach them so much and to explain why strain of muscle, nerve, and spine, varicosities, and other circulatory disorders form the constant sequel of fatigue thus wantonly courted. The opposition we have to contend with is only in part due to ignorance. It is partly also the result of thoughtless want of sympathy, and it is probable that even this difficulty has been exaggerated. The shopping public is less indifferent to the comfort of its helpers than has been supposed, and we are convinced that employers who would candidly trust its consideration and would seat their employés in the intervals of their service have no need to fear the transference of their custom. As regards the kind of seat there may be wide differences of opinion, but we should suppose that some form of fixed support contrived with a little forethought in arrangement would be found to be the most useful and the least obstructive. We may recall to our readers' remembrance that in our issue of Aug. 28th, 1880, we referred to a seat invented by Messrs. Colman and Glendenning of Norwich, and St. Martin's-le-Grand, London, which was simple, inexpensive, and took up but little room. It would be interesting to know by how many firms some such seat has been adopted.

THE LONDON WATER-SUPPLY AND THE RECENT DROUGHT.

THE report of the official water examiner on the condition of the metropolitan water-supply during the month of July, 1895, contains some observations of unusual interest in connexion with the scarcity of the East London supply. Thus, Major-General A. de Courcy Scott—reverting to his report for the month of June, in which he stated that the East London Water Company had found it necessary to reduce the supply of water pumped into their district in consequence of the rapid depletion of the storage reservoirs which had been in progress—now reports that from July 15th the supply was still further restricted, the water having been shut off from all mains except those provided with fire-plugs during from twenty-one to twenty-two hours out of each twenty-four. The supply to three-fourths of the district was consequently received for only two or three hours daily. The remaining services being fitted with fire-plugs were kept charged under statutory obligation. In consequence of a large number of houses in the poorer districts not being provided with cisterns, the substitution of an intermittent supply of two or three hours' duration for the constant supply, which had been universal, "resulted naturally in serious inconvenience and considerable danger to health owing chiefly to the impossibility of flushing the waterclosets and drains as required." The depletion of the company's storage reservoirs between May 27th and July 15th appears to have proceeded at the rate of about twelve million gallons per diem on the average. Calculations show that the East London Company "were taxing the resources of the river [Lea] to the utmost extent," bearing in mind the requirements of navigation, and it would appear from the reports that "the necessity for rigorous limitation of the quantity pumped into the district was imperative, and that the measures adopted were not more drastic than the occasion required." The gradual increase in the volume of the River Lea which ensued after a fall of rain at the end of the month, and later, has enabled the company to lengthen from time to time the period during which water is turned on, and it is stated that this now extends from about 6 A.M. to 8 P.M. Since seasons

have occurred during which the September flow of the Lea has been exceedingly small it would not be prudent, adds the official water examiner, to revert to a constant supply until a reasonable reserve of water has been accumulated in the reservoirs. It is perfectly clear from all this that when drought happens—this summer being, of course, somewhat exceptional—one portion of London at any rate, and a very densely populated portion, may at any moment reach the extent of its resources in regard to water-supply. There is no doubt that the position was at one time most serious, and the real and dreadful terrors of a water famine were imminent. In so vital a matter as this is the merest probabilities and possibilities must be taken into minute account and ample provision made against the very worst that may happen. The immediate question is not so much one of administration, but rather whether the present undertakings are capable of yielding an adequate, or rather a bountiful, supply in any hands whatsoever and under any strain of circumstances. The East London Company, it appears, had not the wherewithal to supply water owing to the unusual drought, and it is to this point that inquiry should be directed. In regard to quality the metropolitan water-supply during July was satisfactory, as is attested by Professors Frankland, Dewar, and Crookes.

THE FRENCH FORCE IN MADAGASCAR.

THE latest accounts from Madagascar regarding the health and sanitary condition of the French expeditionary force in that country appear to be most unsatisfactory. The troops in front occupying the uplands are comparatively healthy, but a large amount of sickness prevails among those in the rear on the lowlands. There are upwards of 3000 sick in the hospitals, and the mortality and invaliding rates have already been very high. In addition to the prevalence of active malarial disease, necessitating hospital treatment, those who have suffered from it and other climatic disorders become anæmic and enfeebled in health, and, as General Duchesne says, "drag along and languish without being able to recover." The only course left open, he adds, is to send them home as promptly as possible. "This is the advice of the Director of the Medical Service, and it is also mine." Unfortunately, however, this course has been attended, as might have been expected, with a very serious loss of life during the hot season in the Red Sea, on board the overcrowded troopships transporting the invalids to France. It is said that General Duchesne had orders not to send any soldiers home from Aug. 20th to the commencement of October. The road-making proved to have such a disastrous effect on the health of the troops that it has been discontinued. A strong feeling of dissatisfaction prevails in France at the amount of sickness and mortality that has occurred, owing, it is thought, to the grave mismanagement of the expedition. No proper arrangements were made for the landing and transport of stores, large quantities of which were consequently lost or had to be abandoned; the soldiers disembarked in the thick cloth uniforms they wore in Europe, and had to march inland heavily laden with their kits, haversacks, and cooking tins; the system of native carriers broke down from the carriers becoming disabled and sick or deserting; there was great difficulty in the matter of supplies; and the hospital service was quite inadequate to the strain imposed upon it. It is also stated that the force in the field was hampered by the action of the French War Office and other departments in connexion, for instance, with the utilisation of the hospitals and sanatoria at Réunion. A second hospital ship has, it is understood, been asked for. Be all this as it may, the descriptions given of the overcrowding of the hospitals and the insufficiency of military medical officers, nurses, and sick attendants disclose a sad state of affairs. One correspondent says that three of the field hospitals were crowded with sick. While they are only intended to accommodate 250 each, the hospital at Suberbieville contained 600 and that at Ankobaka had 1000 patients, the beds in the latter having been placed one above the other. The distance from Andriba to Antananarivo will, it is estimated, occupy fifteen or sixteen days' march, and provisions for twenty days are being accumulated at the former place. General Duchesne hopes to be, as he always anticipated, at Antananarivo at the end of the present month, and in that case we may soon expect to hear much better accounts of the expeditionary force. Of course, a large military expedition in an extremely hot, malarious, and difficult country, without roads or even paths, cannot be undertaken without grave risk to health, and under the very best organisation and arrangements there may be an unexpected amount of sickness with topographical obstacles and climatic difficulties to be overcome. We have served an apprenticeship in petty wars in hot and malarious climates, and have not invariably conducted some of our own little expeditions with such an amount of wisdom and foresight as to be entitled to cast a stone at our military neighbours; but we do not understand how it was that the French War Office failed to have more thoroughly "prospected" the country and made better arrangements for the exceptional character of the campaign than they seem to have done. The expedition to Madagascar seems to have been undertaken too hastily and before the necessary arrangements had been thoroughly thought out and completed, but there is, nevertheless, no adequate reason for the great revulsion of feeling from one of elation to one of extreme depression which is said to have taken place in France.

TWO DEATHS BY LIGHTNING.

DURING the August storms two deaths from lightning took place on the Sussex Downs. The first occurred during the violent storm on Aug. 10th near the village of Alfriston in the eastern part of the county. Here, as in the case recorded in THE LANCET of last week, a man and woman were walking together. They had been to show an acquaintance his way on the Downs, and although there was no thunder when they started they were caught in the heavy storm which followed. They were walking together arm-in-arm when a flash of lightning and a peal of thunder were stated by the woman to occur simultaneously. Her husband, a carter named Foord, said "Oh," and they both fell to the ground, linked as they were arm-in-arm. The woman appears to have lain unconscious for some time. Her own version is that when she "came to" she found she could not walk, so she crawled home for assistance. Her husband was afterwards brought home dead. The woman says that when she rolled over she noticed "sparks" come from under her, and for some days she was confined to her room by illness. The dead man was seen by Mr. Hugh Wallis on the spot where he fell. There was a discolouration on the left side of the head, and a good deal of blood flowed from the nostrils. There was no wound or abrasion. The hat, which was found some eight yards from the body, showed an irregular cut which had severed the band and completely penetrated the felt. A knife and key, with threepence in coppers, were found in the waistcoat pocket, but bore no marks to show that they had been in contact with the lightning. The grass at the spot where the body fell was scorched. A case which occurred later—on Aug. 22nd—is more clear. Three men were working a steam plough at Lancing, near Worthing, when a storm, which had appeared to be but trivial, suddenly increased in violence. The cultivator was making its last journey, a man named Ransom being in charge, when the two men with the engine were alarmed by a vivid flash, and shutting off the steam made for the nearest

shelter, one of them shouting to Ransom to "clear out" too. One of the drivers said the flash seemed to strike his engine, causing a rattling sound, and then to run "right on to the top of Ransom." Both the drivers got safely to shelter and expected that Ransom had done the same, but the hovel in which they took refuge hid the machinery from sight. The storm lasted half an hour, when the men found Ransom dead, still on the seat of the cultivator, but in a lying position and, so they said, black in the face. Mr. C. M. Kempe found only a slight abrasion on the forehead, from which a little blood was flowing. There was no sign of blackening as from burning, and no fracture.

DIPHTHERIA IN LONDON.

THE deaths from diphtheria registered in London last week, were 37, being two below the corrected decennial average for the corresponding week of the years 1885–94, and fewer than the records of the three preceding weeks, and with one exception fewer than the weekly records for a long time past. The three preceding weeks had seen 40, 38, and 55 deaths respectively. The deaths occurring last week included 4 each belonging to St. Pancras and Greenwich, and 3 each to Mile End Old Town and Lambeth. All the deaths were in persons under twenty years of age, and the great majority in children under five years of age. The diminution in fatality last week was in no wise attended by any like falling off in amount of the disease, for both the fresh cases and the admissions to hospital showed an increase. Of the latter, there were 114 as compared with 86, 78, and 105 in the preceding weeks; and the patients remaining under treatment on Saturday last numbered 665, a total practically identical with the numbers for the last five weeks. In the Outer Ring of London there were 16 deaths registered from diphtheria, and of these 6 occurred in West Ham district and 3 in Hornsey subdistrict.

THE MODERN PRINCIPLES OF SEWAGE PURIFICATION.

SIR DOUGLAS GALTON in his presidential address at the recent meeting of the British Association at Ipswich, among other topics included in his analytical *résumé* of the progress of physical science in the interval between 1831 and the present time, adverted to the subject of sewage purification. Owing to the difficulties entailed in thickly settled districts and the extent of land required for the direct application of sewage to soil, and the large amount of sludge that had to be dealt with after the chemical treatment of sewage, it was long contended that the simplest plan was to turn the sewage into the sea, and this was accordingly done in localities where it could be carried out. It was not until the chemist called to his aid the biologist and came to the help of the engineer, says Sir Douglas Galton, that a scientific system of sewage purification was evolved. Dr. Frankland many years ago suggested the intermittent system of filtration, which Mr. Baldwin Latham was one of the first to adopt. But the valuable experiments made by the State Board of Health in Massachusetts more clearly explained how by this system micro-organisms might be utilised for the purpose. To effect this we require, says Sir Douglas Galton, in the first place, a filter about five feet thick of sand and gravel or of some material which affords numerous surfaces or open pores; and, secondly, that after a volume of sewage has passed through the filter an interval of time be allowed in which the air necessary to support the life of the micro-organisms is enabled to enter the pores of the filter. Thus, this system is dependent upon oxygen and time. Under such conditions the organisms necessary for purification are sure to establish themselves in the filter before it has been long in use. Temperature is a secondary consideration. Imperfect purification can invariably be traced either to a lack of oxygen in the pores of the filter, or to the sewage passing through so quickly that there is not sufficient time for the necessary processes to take place. And the power of any material to purify either sewage or water depends almost entirely upon its ability to hold a sufficient proportion of either sewage or water in contact with a proper amount of air.

PATHOLOGICAL ANATOMY OF MULTIPLE SCLEROSIS.

DR. O. HUBER has recorded in *Virchow's Archiv* the result of an examination of the central nervous system in a case of this strange and obscure disease. The examination seemed to indicate that the disease consists essentially in a parenchymatous degeneration of the nervous tissue. It was found that, in recently affected spots especially, there was widespread disappearance of the nerve fibres without any greater changes in the interstitial substance than could be accounted for by the changes secondary to the disappearance of the fibres, so that the sclerotic patches must, in this case at least, be regarded as due to the disappearance of the nerve fibres, with consequent proliferation of the interstitial substance. No explanation is furnished of the absence of secondary degeneration, which would naturally be expected to follow from the presence of the islands of sclerosis in the tracts of the spinal cord.

FORBIDDEN FRUIT.

A PECULIAR case of death occurred last week in the Royal Infirmary, Liverpool. The patient, a boy aged about fifteen years, had been operated on for radical cure of hernia by Mr. Rushton Parker and was going on well after the operation. His father, however, paid him a visit, and on leaving gave him some grapes unknown to the nurse and against the rules. In the night he was taken suddenly ill, and by the time the house surgeon reached him he was dead. A necropsy was made, and his larynx was found to be full of grape skins, which had caused death by asphyxia. It is strange that friends will be guilty of such mistaken kindness in serious cases, and seem to delight on visiting days to take for the patients fruit and sweetmeats which are injurious to those they are so anxious about. It is a well-known fact to hospital surgeons that their patients are frequently worse after a visiting day, although the greatest vigilance may be observed by the nurses in attendance.

HOW SCARLET FEVER IS SPREAD.

THE repeated failures of prosecutions under Section 126 of the Public Health Act, 1875, would seem to suggest that some modification of that section is desirable. As a rule such actions fail because the sanitary authority is unable to prove that the person suffering from the infectious disease, or being in charge of a person so suffering, was aware of the true nature of the disease; but recently a case tried at the Colchester Police-court was dismissed because the medical attendant who had notified that certain members of a family were suffering from scarlet fever failed to prove that they were so suffering when the notification was sent to the medical officer of health. The family resided in the parish of Coggeshall, in the Braintree rural district, and five of the children were in succession attacked with scarlet fever, the fact being duly notified by the medical attendant. When all were convalescent and four had finished "peeling" the whole family moved to West Mersea, a small watering-place on the Essex coast, in the Lexden and Winstree rural district. Neither the clothing of the patients nor the house in which they had resided had been disinfected. When Dr. Carr, the

medical officer of health for the Braintree rural sanitary district, found that the family had gone to West Mersea, he advised the medical attendant to acquaint the medical officer of health for that district of the fact. This he did by sending five notifications to the effect that the children were suffering from scarlet fever. Dr. Cook, the medical officer in question, at once visited West Mersea and found the children coming up from the beach in the company of other children. He did not examine the patients, but reported the facts at the next meeting of his district council. A prosecution was ordered, and when the case was heard before the Colchester Bench Dr. Cook said that he could not assert of his own knowledge that the children were actually suffering from scarlet fever. The medical attendant said that as the children had practically finished "peeling" it was questionable whether there was any danger of infection, and that he notified the cases as a precautionary measure. The case was thereupon dismissed. As the medical man who notified did not attend the patients whilst at West Mersea, and expressed such grave doubt as to whether they were still suffering from an infectious disease, the validity of the notification is open to question. It would have been better had the notice of removal been sent by Dr. Carr in his capacity of medical officer of health. Under the circumstances the Lexden and Winstree district council had no option but to prosecute, and it is to be regretted that they failed to secure a conviction. If children who have suffered from scarlet fever can be removed with impunity to a watering-place before they have ceased to desquamate and before their clothing has been properly disinfected the risk of spreading the infection amongst the community is greatly increased, and either some better definition is required of the words "suffering from any dangerous infectious disease" or there should be some appeal allowed against a decision of this character. Possibly a prosecution under Subsection 3 of Section 126, which refers to the transmission of infected clothing without previous disinfection, would have been successful, as the evidence of the medical attendant could then have been dispensed with. Such a miscarriage of justice is to be deplored, but it can scarcely be wondered at, considering the nature of the evidence.

IS COLOUR-BLINDNESS A CASE OF ATAVISM?

A RECENT writer, M. Dubois, throws out a suggestion that will probably be new to most of our readers. It is recognised by astronomers that there are three classes of stars—first, the bluish-white stars, of which Sirius and Regulus are examples. More than half of all known stars belong to this class. In these stars combustion is at its maximum, and their atmosphere consists of super-heated hydrogen and certain metallic vapours. The second class, or yellow stars, has for typical representatives Capella and our own sun. They are less hot than the first class, and the hydrogen lines in their spectrum are not so conspicuous as in the case of the white stars. This class contains about 33·5 per cent. of all known stars. The third class are the red stars, and of these Betelgeux is the representative. They are in a later stage of cooling than the second class, and the violet rays are deficient. This class includes about 8 per cent. of known stars. From these known facts it is conjectured that colour-blindness (or insusceptibility to the red rays of light) may possibly be a case of atavism—a "negative inheritance from that time long ago when the eye of our ancestors was not yet sensitive to red rays, which were almost entirely wanting in the white stage of the sun." This is a startling theory, but it suggests a plausible explanation of what is such a mysterious fact—viz., that colour-blindness should so uniformly take the form of insusceptibility to the red rays. Atavism is without doubt a principle of wide application, and may be fairly relied upon to explain many apparently inexplicable facts. We will not venture to pronounce upon the correctness of its application in the present instance, but at least the theory is a bold and ingenious one, and, if accepted, would tend towards that unifying of knowledge which is the aim of science. Colour-blindness, regarded as an isolated phenomenon, is mysterious, but if it be a case of atavism it takes its place in the scheme of ordered knowledge.

RHEUMATISM AND APPENDICITIS.

DR. BEVERLEY ROBINSON of New York, in the *New York Medical Record* of Sept. 14th, argues in favour of an etiological connexion between rheumatism and appendicitis. He admits that he has seen no immediate relation between an attack of acute rheumatism and an attack of appendicitis, though others have reported such an experience. But he says: "When it comes to the milder and, according to some, perhaps less characteristic symptoms of rheumatism, these I have repeatedly observed in patients who have had one or more attacks of appendicitis," and "I have seen more than one patient who subsequent to attacks of appendicitis had decided articular manifestations, and during many years of this rheumatic localisation the appendicial region has remained entirely free from any inflammatory disease." Dr. Robinson is also thoroughly convinced of the frequent efficacy of salicin or salicylates to relieve pain and avoid suppuration, though he uses also local applications, rest in bed, light diet, and if necessary, but only on the failure of these means, morphia or codeia. The point is one of great scientific and practical interest, which we commend to the attention of our readers.

THE COST OF ISOLATION IN LONDON.

THE comments made by the coroner, Mr. W. E. Baxter, in a case at Mile End, where a scarlet-fever patient was sent back home by the Asylums Board officials on the ground that there were no vacant beds, raises a question of the utmost importance. Time was when there was difficulty in inducing parents and friends to allow their infectious sick to be removed to the Asylums Board hospitals, but that is now a thing of the past, and the demand now made on these establishments altogether exceeds the accommodation available, notwithstanding the fact that an enormous expense is constantly being incurred in the erection of new hospitals, some professedly temporarily and others admittedly permanent. In the case immediately under consideration it transpired that patients have had to wait five or seven days before their turn arrived for admission to hospital both during epidemics of diphtheria and prevalence of scarlet fever. Now, if all these cases needed removal from their homes in the interests of public health, and if in all cases adequate isolation could not be carried out where the patients sickened, then we must candidly admit that they ought to be isolated elsewhere. But we have no evidence that these facts do apply to all cases, and we know that a very heavy burden is gradually being placed upon the ratepayers in order to provide means of hospital isolation for infectious diseases. According to the recently issued report of the medical officer of the Local Government Board the following notifications were received in the administrative county of London in 1893: small-pox, 2948; scarlet fever, 37,974; diphtheria, 13,470; enteric fever, 3746; continued fever, 217. For how many of these cases, wellnigh reaching 60,000 in number, should the Metropolitan Asylums Board provide at the public cost? That is the real question which is raised; and if the Local Government Board deals with the representation of the coroner in the proper way, it will be to elicit, in the first instance, something of the circumstances of the

persons and households which are in question as making demands on the Asylums Board to receive their sick. The public interests must stand first, but we need evidence to show what are the main public interests concerned.

THE UNITED STATES MAILS AND THE TRANSMISSION OF BACTERIOLOGICAL SPECIMENS.

BACTERIOLOGICAL examination is such an essential feature in the diagnosis of certain diseased conditions that those who place obstacles in the way of its performance are incurring a somewhat grave responsibility. We learn, however, from the last bulletin of the New Jersey State Board of Health that up to July 2nd the Postmaster-General had refused to modify the order of the United States Postal Department of June 1st, 1893, which excludes from the mails "disease germs, discharges of any kind from diseased persons, or other things of like character, no matter how securely put up." This position has apparently been maintained in spite of the fact that Dr. Henry Mitchell, secretary of the New Jersey State Board of Health, intimated to the Postmaster-General the proposal of the Board to establish a bacteriological laboratory, and submitted to him a specimen mailing package similar to those used in France. Furthermore, the New Jersey Medical Society has expressed its opinion that diseased tissues for bacteriological examination can be transported without endangering the health of persons handling the packages. The bulletin from which the above information is derived expresses an opinion that if all those engaged in bacteriological study would join in an effort to make the subject clear to the postal officials all would be well; but we should have thought that the opinion of the New Jersey Medical Society would be sufficient to effect the desired modification. Unfortunately, the Postmaster-General merely states that he does not "deem it expedient to modify the present rule," so that we are precluded from discussing the objections to the proposal.

THE FRENCH ARMY MEDICAL SERVICE.

EVER since 1882 the Service de Santé of the French Army has been practically autonomous, the command of all transport, as well as of the *personnel* derived from other branches and temporarily attached for duty, having been vested in medical officers by virtue of the law of March 16th in that year. It seems, however, that this condition of things is displeasing to the combatant arms, and, according to an article published in the *Bulletin Médical* of Aug. 4th by Dr. Noël, an organised attempt is being made to deprive the medical corps of all control over the men composing the detachments, who have been instructed to pay attention to orders from their own officers alone. The first outcome of this retrograde movement, we are told, is the issue of a circular from Artillery headquarters, laying down the mode of progression to be followed by ambulances. On no account are they to leave the public roads, and the pace they are driven at must never exceed a walk. Should a gutter intervene the utmost care must be exercised in crossing it. Dr. Noël is very indignant, and rightly so, we think, at this attack on the medical officer's prerogative. In Germany, Austria, and Russia, where the feudal spirit is rampant, where caste prejudice persists, and where the fighting element looks upon itself as something superior, such a state of affairs might be expected, but France has a right to demand a more enlightened procedure. As long as medical officers are held responsible for the successful administration of their service it is only just that they should be endowed with supreme authority therein, and also with means sufficient to enable them to accomplish their task. The new state of things is in flagrant contradiction to both the spirit and the letter of the law of 1882. It remains for the members of the Senate and Chamber to record their opinion of a measure whereby a permanent source of dissension is introduced into the medical service, which robs medical officers of all power of accomplishing the duty entrusted to them by their country, which, in fine, simply kills the medical service, while paving the way for disorders and disasters, should war break out, such as not even the terrible year 1870 could equal. There is one point in Dr. Noël's article to which many readers will take exception. Amongst the new armies of Italy, Switzerland, and Japan, where there are no superannuated prejudices to be overcome, and where consequently the medical departments are autonomous and successful, he places that of England.

HEALTH RESORTS AND INFECTIOUS DISEASE.

IN Dr. Niven's last quarterly return on the health of Manchester he points out that, although each autumn there is fresh evidence that children taken to "health resorts" frequently contract scarlet fever and other infectious diseases, it is astonishing that heads of families should continue to manifest so little solicitude as to the freedom from infection of the quarters which they select. Visitors are, he remarks, entitled to a guarantee that the seeds of infection shall not be present in apartments offered, and he reminds the people of Manchester that at seaside places where notification is in force visitors may obtain reliable information from the medical officer of health. In reference to this point it appears to us that in some large health resorts inquiries such as these by visitors entering the town might add very materially to the work of the sanitary department. To assist persons resident in Manchester in the selection of a holiday resort Dr. Niven has had the last quarterly return of the Registrar-General placed in the Public Health Office for reference, and he draws attention to the information contained in Table VIII. as to the infectious disease mortality in the principal watering-places of Great Britain during the quarter ended June 29th. We shall be much interested to hear what use has been made of the opportunities so offered by Dr. Niven.

THE DIFFUSION OF SMALL-POX.

THERE was a decided drop in the number of fresh cases of small-pox coming to light in the metropolis last week as compared with recent periods. In the four weeks ending Aug. 10th there had been a weekly average of over 70 notifications of the disease in London, followed by an average of 60 in the succeeding four weeks, this smaller average being mainly the result of the decrease in the last fortnight of the period. Indeed, in the four weeks ending on Saturday last the average number of cases each week was only just over 30, the attacks of last week having been but 21, a sensible decline taken in conjunction with previous weeks. Of the 523 notifications, as to the locale of which in the eight weeks ended Sept. 7th details are to hand, no fewer than 304 were in six sanitary areas situated in the east and south-east of London. The admissions to hospital last week were 23, against 36, 25, and 42 in previous weeks, and the patients remaining under treatment on Saturday last numbered 271, a total which has been steadily diminishing since it stood at 342 on Aug. 24th. Two deaths were registered, one being assigned to Shoreditch and the other to Greenwich, one being that of a vaccinated adult and the other that of an adult concerning whose vaccination no statement is forthcoming. Manchester had further experience of small-pox last week, one death being registered and 8 attacks being recorded. The disease had for some time been confined to the Openshaw district, but has now got beyond it. In the borough of Oldham the attacks in the

fortnight ending Aug. 24th were 11, 1 less in the next two weeks, and only half that number in the fortnight ending last Saturday. The decrease is satisfactory. In Dublin the admissions to hospital in the second week of September were 9 in number, an increase over the numbers of several previous weeks. The death of an unvaccinated infant was registered. Three discharges took place and 18 patients remained under treatment, all the convalescent cases having been sent away from Kilmainham Small-pox Hospital.

SANITARY CONVENIENCES AT RAILWAY STATIONS.

THOSE who are accustomed to make long railway journeys must be frequently impressed, not to say disgusted, with the filthy condition of the sanitary conveniences at the railway stations in this country, and must be led to reflect as to whether such conveniences are ever visited by the sanitary inspectors of the districts in which they are situated. At the more important stations, where a small charge is made for the use of the closets, there is often little or nothing to be said against the accommodation; but in smaller stations, where apparently the cleansing of the closets is left to a porter, who has in addition numerous other duties to perform, the condition of affairs is such as to frequently preclude the use of the closet for the purposes for which it was intended. The position and construction of such closets render the presence of light impossible, and in consequence it is difficult without the aid of artificial illumination to properly estimate the filthy conditions which obtain. Further, owing to the absence of sunlight and ventilation, the drying process is much delayed, and for several hours after the floor has been cleaned it is undesirable to deposit thereon any small articles of luggage, while the want of a peg or nail for the suspension of such articles still further complicates matters. In some cases improvement is impossible short of entire reconstruction; but in numerous instances, which we have ourselves examined, the introduction of a window together with improved ventilation would bring about a very radical change. The flushing apparatus is frequently out of order, owing not so much to misuse as to defective construction; but this point could, of course, be easily remedied. When regard is had to the agency which badly flushed and filthy closets may play in the dissemination of enteric fever, it is obviously a matter of no inconsiderable importance that improvement in the direction indicated should be effected, and we venture, therefore, to commend the sanitary conveniences at railway stations to the combined attention of sanitary authorities and the railway companies.

DIPHTHERIA AND SCHOOLS.

THE village of Bedlinog, near Merthyr, having a population of about 1500, mostly colliers, has during the late spring and summer been visited by an epidemic of diphtheria, 78 cases having been notified between April and August, besides a few which appeared from time to time during the preceding winter months. The houses are for the most part well built of quarried stone and are dry and airy, the sewerage is good, and the water-supply is the same as that of Merthyr. In Powell-street, however, there is a row of damp, dilapidated wooden structures appropriately called the "huts." They are not connected with the public sewers, but have privies with cesspits in their backyards. In these, as might have been expected, the incidence of the disease was heaviest, and here occurred the first of the continuous series which constituted the epidemic, but the sporadic cases between December and March were all in other parts of the town. The connexion of the schools with the origin and spread of the infection was evident from the fact that 61 of the 78 cases were those of children attending school, the remaining 17, whether over or under school age, having in every instance been subsequent and secondary to the former, alike in the huts and elsewhere, while the conditions of the schools were amply sufficient to account for the outbreak. Though spacious and in other respects well arranged, the sanitary conveniences consisted of trough closets, automatically flushed and connected by glazed pipe drains, without traps, with two cesspits sunk in the pervious sandstone rock, with no steining or cement lining, into which the fluid part of the sewage percolated so freely that they never required emptying. In fact, it had not been deemed necessary to provide any aperture for access or ventilation, and as a consequence each periodical discharge of the flushing tank displaced an equal volume of foul air, which escaped by the sole exit—the open drain-pipe—into the closets. Though the conditions of the huts were such as would tend to intensify the disease when it broke out among them, this did not take place until April, and even then the first cases were those of scholars who were less exposed thereto than those children who never left their homes. This outbreak, whether it had its origin in the schools, or, as the medical officer of health is inclined to think, in the huts, suggests the grave question of the responsibility for the scandalous violation of the elements of sanitation in the former. In the first place, of course, the architect employed by the local School Board may have been to blame, but all plans have to be approved by the Education Department; and we may well ask how it came about that the authorities of the Department could pass or allow to be passed plans which provided for the saturation of the subsoil with sewage and involved the periodical discharge of volumes of foul gases into buildings attached to the schools.

AT the centenary of the London Missionary Society, to which we beg to offer our hearty congratulations, it is noticeable that speakers from every part of the field of operations make generous allusion to the part played by medical missionaries. This was especially so in the speeches referring to Madagascar by the Rev. James Richardson of Antananarivo, Madagascar, and the Rev. G. A. Shaw, F.Z.S., Farafangana, Madagascar. The founders of the society little thought in 1795 of this element in the work, which is destined to bear still more fruit.

THE work of reconstructing the premises of the General Medical Council—now the property of the Council itself—is proceeding as rapidly as possible. But it is, perhaps, a little sanguine to expect that it will be completed in time for the November meeting. The drainage is being placed on a much more satisfactory footing than before, and perhaps the necessity for this was not anticipated when the alterations were commenced. This and other causes may interfere, but every effort, we believe, is being made to realise the wishes of the Council.

ON Tuesday, Oct. 1st, Sir James Paget will present Dr. Hughlings Jackson with his portrait and a piece of plate. The testimonial, which has been widely subscribed for, will be given at 3 P.M. in the Library of the London Hospital Medical College, where also a replica of the portrait is to be placed.

WE regret to have to announce the death of Professor Bardeleben, which occurred on Sept. 29th at Berlin. We shall publish an account of his life and work in an early issue.

REPORT OF THE MEDICAL OFFICER TO THE LOCAL GOVERNMENT BOARD, 1893-94.[1]

[FIRST NOTICE.]

THE valuable collection of reports and scientific memoirs that is issued annually in the report of the medical officer to the Local Government Board has come to be regarded, and rightly so, as one of the most important publications of the year. There is always much that is instructive in the details of the carefully conducted investigations upon epidemic disease furnished by the medical inspectors, whilst the laboratory work of Dr. Klein and his colleagues which constitutes the section of the report entitled "Auxiliary Scientific Investigations" deals with the more recondite problems of etiology, to the solution of many of which these papers have largely contributed. The admitted value and excellence of the series of volumes which has thus accumulated makes the want of a good index to them more evident. It might perhaps be superfluous to have an index to each volume; but the publication from time to time of a general index would be a great boon to those who are engaged in preventive medicine. The present volume constitutes the supplement to the twenty-third annual report of the Local Government Board and deals with work prosecuted in the year 1893-94. The ably written report by Dr. Thorne Thorne summarises with precision and exactitude each of the several subjects treated in detail in the appendices. These embrace a variety of topics, such as enteric fever, diphtheria, epidemic skin disease, cholera, moorland waters in relation to lead poisoning, and furnish much information, some of which confirms and corroborates previously accepted ideas, whilst other portions open up new and suggestive lines of inquiry. In the present notice it will be sufficient to briefly indicate the outlines of these reports, which deserve to be studied in detail.

The customary statistics relating to vaccination in England and Wales appear in the forefront of the volume. They refer to the primary vaccinations amongst the 914,079 infants whose births were registered in 1891, and they show that there is a progressive increase in the numbers of those "unaccounted for." This class now form 13·4 per cent. of the total number of births, the percentage being 16·4 in the metropolis and 12·9 in the provinces. An explanation for this growing evasion of the vaccination laws may be in part explained by the decision taken by many boards of guardians to abstain from prosecution of defaulters pending the report of the Royal Commission. Thus year by year it is becoming more difficult to reinforce compulsory vaccination if, as may surely be anticipated, the commission reports in that sense. A glance at the statistics shows that the chief towns in which vaccination is most neglected, as denoted by the high percentage of children in the "unaccounted for" or "postponed" list, are—

	Per cent.		Per cent.
Gloucester	84·7	Barrow-on-Soar	78·1
Wellingboro'	83·2	Luton	77·1
Keighley	83·1	Blaby	76·7
Northampton	80·2	Halifax	74·9
Leicester	79·9	Kettering	73·6
Oldham...	78·7		

whilst at Saddleworth, Thrapston, Loughborough, Eastbourne, and Falmouth the figures stand at from 60 to 70 per cent. The singularly variable proportion of children certified as "insusceptible" to vaccination in different districts is, perhaps, explained by the fact cited by Dr. Thorne Thorne—that at the Lambs Conduit-street station there has not been a single failure of the vaccination to take out of 81,500 persons primarily vaccinated there during a series of years, for although a small percentage failed on the first attempt there was only one failure on the second, and that was removed by a third attempt. The inference that "insusceptibility" is coterminous with "inefficiency" seems obvious.

Amongst the reports of the medical inspectors selected for detailed publication are four of no slight importance dealing with the subject of "waterborne typhoid." The memorable epidemic of enteric fever at Worthing in the summer of 1893 was investigated by Dr. Theodore Thomson, whose report, fully illustrated by plans and maps, shows clearly that the outbreak in Worthing proper was related to the accidental inrush of water into a heading in course of excavation connected with one of the large wells in the chalk that formed the supply to this portion of the borough. The water thus introduced into the pure supply had penetrated through soil contaminated by leaking sewers. A fortnight after this occurrence enteric fever, which had not existed in the place during the past year, appeared, and this outbreak formed the starting-point of an epidemic lasting from May to November, with marked exacerbations in July following an abatement at the end of May and beginning of June. Altogether there were no fewer than 1257 attacks in "Worthing" alone in a population of 15,300. West Worthing and the neighbouring villages of West Tarring and Broadwater were also the seat of the disease; but only the last-named derived (in part) its water from the "Worthing" wells, the supply to West Worthing and West Tarring being distinct. Moreover, the outbreak in these districts was much later in its appearance and far less severe than in the "Worthing" division of the borough, and no clear connexion could be traced between the two. Dr. Maclean Wilson reports on an outbreak of enteric fever in Chester-le-Street between October, 1892, and March, 1893, when 58 cases and 4 deaths occurred in a population of 4864. In this limited area, where many dwellings were the reverse of sanitary, investigation showed that the cause of the outbreak was referable to contaminated water-supply. For with only two exceptions each of the invaded households received their water from the Chester-le-Street Company, which supplied about 650 out of 1100 houses, the remainder being supplied by the Consett Company. The water came from the Stanley Burn, which above the intake receives the sewage from several villages, and co-incidently with the outbreak in Chester-le-Street, four cases of enteric fever had occurred in some cottages which drained directly into a tributary of the Stanley Burn about three miles above the intake. It is further pointed out that the sand employed for the filtration of this water-supply is derived from the banks of the Wear at a point below its reception of the sewage of a large population. Dr. Bruce Low investigated the conditions associated with the prevalence of enteric fever in the Vale of Pickering and at Malton from November, 1892, to January, 1893. The villages especially implicated were Nunnington and Ness in the Kirkby Moorside rural district, and Butterwick and Brawby in the Malton rural district. Here again there was ample evidence of sewage contamination of the River Rye, for the disease only attacked those households which took their water-supply from this stream, whereas those taking water from wells escaped. This river in its course receives the sewage of villages, and particularly of the town of Helmsley, between which and Nunnington also were fields bordering on the river upon which was spread the "town manure," including night soil from Leeds. This interesting report further deals with Malton, where prevalences of fever and diarrhœa have been shown to supervene upon seasons of flood in the Derwent. The well that supplies the place is apt to be invaded by water from that river which is joined by the sewage-contaminated Rye four miles above Malton. Dr. Bruce Low also reports on enteric fever in Trentside villages, proving beyond question that this important river, which affords a water-supply for domestic services to a large rural population, is contaminated by sewage, especially from the towns of Gainsborough and Newark: thus, of 192 attacks of enteric fever in that district, no fewer than 167, or 86·9 per cent., occurred among a population of less than 6000 dwelling in villages, of which the main water-supply was drawn from the Trent or from canals similarly contaminated. The harmfulness of the Trent water was also proved in the case of Newark itself, where of 297 cases of enteric fever during three years and a half, 78·5 per cent. were among those who consumed Trent water, and 21·5 per cent. among those who took their water from local wells. It is satisfactory to learn that since then Newark has been provided with a constant supply from the new red sandstone. It is not surprising, in face of these facts of the use of contaminated rivers and the supineness of local authorities in dealing with the evil, to find Dr. Thorne Thorne give expression to the following forcible statements. He says (p. 14):—

"In my report on cholera in England during 1893 I pointed out that of the 64 localities in which cholera appeared in this country the disease was limited in 42, or

[1] Twenty-third Annual Report of the Local Government Board, 1893-94. Supplement containing the Report of the Medical Officer for 1893-94. London: Eyre and Spottiswoode. 1894. Price 13s. 4d.

nearly 60 per cent. of the whole, to one single attack; and this was the case although as regards the majority of the attacks the disease must be looked upon as having been true cholera of the Asiatic type, whether it be judged by its clinical symptoms, by the outcome of bacteriological research, or by the heavy rate of mortality which it occasioned. Such a result, altogether unique in the history of cholera, was, I believe, largely due to the improved sanitary circumstances of England. But it is certain that if, in the cases of public water service I have been considering, the specific material which found access to the waters had been that of cholera instead of enteric fever, our cholera history for 1893 would have been the record of even greater disaster brought about in most of the cases by deliberate neglect. Even as the matter stands such instances of neglect remain a matter of reproach to our local sanitary administration."

CHOLERA.

THE latest official returns from St. Petersburg show that in the province of Volhynia there were 2497 cases of cholera and 944 deaths between Aug. 18th and 24th, and 3352 cases and 1190 deaths between Aug. 25th and 31st. In the province of Podolia 34 cases and 20 deaths occurred between Aug. 21st and 24th, and 67 cases and 25 deaths between Aug. 25th and 31st. The news of a sudden and severe outbreak of cholera in Algiers has since been contradicted by the British Consul-General at that place. It appears that there has been no such outbreak, and that Algiers is quite free from the disease.

At Constantinople, however, cases of cholera have been very frequent of late, but there are no official returns as to their number. In the neighbourhood of Broussa, also, cholera is stated to have been recently very prevalent and to have caused some anxiety to the sanitary authorities in Turkey.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN thirty-three of the largest English towns 6278 births and 4028 deaths were registered during the week ending Sept. 21st. The annual rate of mortality in these towns, which had been 19·9 and 19·3 per 1000 in the two preceding weeks, rose again last week to 19·8. In London the rate was 16·0 per 1000, while it averaged 22·6 in the thirty-two provincial towns. The lowest rates in these towns were 9·1 in Croydon, 12·3 in Plymouth, 14·8 in West Ham, 15·8 in Bristol, and 17·1 in Cardiff; the highest rates were 28·3 in Gateshead, 30·2 in Blackburn, 30·5 in Salford, 31·8 in Hull, and 32·9 in Sunderland. The 4028 deaths included 982 which were referred to the principal zymotic diseases, against 1071 and 991 in the two preceding weeks; of these, 689 resulted from diarrhœa, 71 from whooping-cough, 68 from "fever" (principally enteric), 65 from diphtheria, 57 from measles, 29 from scarlet fever, and 3 from small-pox. No deaths from any of these diseases were recorded in Croydon; in the other towns they caused the lowest death-rates in Huddersfield, Plymouth, Bristol, and Birkenhead, and the highest rates in Hull, Sunderland, Salford, Blackburn, and Burnley. The greatest mortality from measles occurred in Salford, Oldham, and Blackburn; from whooping-cough in Wolverhampton, Sunderland, and Gateshead; from "fever" in Swansea, Derby, Blackburn, and Sunderland; and from diarrhœa in Wolverhampton, Burnley, Preston, Hull, and Sunderland. The mortality from scarlet fever showed no marked excess in any of the large towns. The 65 deaths from diphtheria included 37 in London, 4 in West Ham, and 4 in Burnley. Two fatal cases of small-pox were registered in London and 1 in Oldham, but not one in any other of the thirty-three towns. There were 271 cases of small-pox under treatment in the Metropolitan Asylum Hospitals and in the Highgate Small-pox Hospital on Saturday last, the 21st inst., against 340, 328, and 307 at the end of the three preceding weeks; 23 new cases were admitted during the week, against 36, 25, and 42 in the three preceding weeks. The number of scarlet fever patients in the Metropolitan Asylum Hospitals and in the London Fever Hospital at the end of the week was 2732, against 2512, 2600, and 2674 on the three preceding Saturdays; 344 new cases were admitted during the week, against 264, 336, and 365 in the three preceding weeks. The deaths referred to diseases of the respiratory organs in London, which had been 134 and 123 in the two preceding weeks, rose again last week to 141, but were 37 below the corrected average. The causes of 44, or 1·1 per cent., of the deaths in the thirty-three towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in West Ham, Cardiff, Sheffield, Newcastle-upon-Tyne, and in twelve other smaller towns; the largest proportions of uncertified deaths were registered in Birmingham, Leicester, Bradford, and Sunderland.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in the eight Scotch towns, which had been 17·5 and 16·9 per 1000 in the two preceding weeks, rose again to 18·5 during the week ending Sept. 21st, but was 1·3 per 1000 below the mean rate during the same period in the thirty-three large English towns. The rates in the eight Scotch towns ranged from 10·3 in Perth and 13·1 in Paisley to 21·1 in Dundee and 23·5 in Greenock. The 534 deaths in these towns included 57 which were referred to diarrhœa, 16 to "fever," 10 to whooping-cough, 4 to scarlet fever, 3 to measles, 3 to diphtheria, and not one to small-pox. In all, 93 deaths resulted from these principal zymotic diseases, against 105 and 90 in the three preceding weeks. These 93 deaths were equal to an annual rate of 3·2 per 1000, which was 1·6 below the mean rate last week from the same diseases in the thirty-three large English towns. The fatal cases of diarrhœa, which had declined from 78 to 61 in the three preceding weeks, further fell to 57 last week, of which 19 occurred in Glasgow, 17 in Dundee, and 13 in Edinburgh. The deaths referred to different forms of "fever," which had been 4 and 9 in the two preceding weeks, further rose to 16 last week, and included 9 in Glasgow, 3 in Greenock, and 2 in Edinburgh. The 10 fatal cases of whooping-cough were within one of the number recorded in the preceding week, and included 6 in Glasgow and 2 in Aberdeen. The deaths from scarlet fever, which had been 8 and 4 in the two preceding weeks, were again 4 last week, of which 2 occurred in Glasgow, where the 3 fatal cases of diphtheria were also recorded. The deaths referred to diseases of the respiratory organs in these towns, which had been 56 and 52 in the two preceding weeks, rose again to 66 last week, but were 8 below the number in the corresponding week of last year. The causes of 29, or more than 5 per cent., of the deaths in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 22·2 and 25·4 per 1000 in the two preceding weeks, declined again to 22·1 during the week ending Sept. 21st. During the past twelve weeks of the current quarter the death-rate in the city has averaged 23·3 per 1000, the rate during the same period being 18·7 in London and 16·6 in Edinburgh. The 148 deaths registered in Dublin during the week under notice showed a decline of 22 from the number in the preceding week, and included 21 which were referred to the principal zymotic diseases, against 13 and 21 in the two preceding weeks; of these, 12 resulted from diarrhœa, 5 from "fever," 2 from scarlet fever, 1 from small-pox, 1 from whooping-cough, and not one either from measles or diphtheria. These 21 deaths were equal to an annual rate of 3·1 per 1000, the zymotic death-rate during the same period being 2·7 in London and 2·9 in Edinburgh. The fatal cases of diarrhœa, which had been 8 and 12 in the two preceding weeks, were again 12 last week. The deaths referred to different forms of "fever," which had been 1 and 4 in the two preceding weeks, further rose to 5 last week. The 2 fatal cases of scarlet fever exceeded the number recorded in any recent week. The 148 deaths in Dublin last week included 32 of infants under one year of age, and 25 of persons aged upwards of sixty years; the deaths both of infants and of elderly persons showed a marked decline from the numbers recorded in the preceding week. Four inquest cases and 4 deaths from violence were registered; and 47, or nearly a third, of the deaths occurred in public institutions. The causes of 19, or nearly 13 per cent., of the deaths in the city last week were not certified.

THE SERVICES.

MOVEMENTS OF THE MEDICAL STAFF.

SURGEON-COLONEL MUIR has embarked for India in the *Britannia*. Surgeon-Majors Coates, Haslett, and Weston, and Surgeon-Lieutenant Anderson have also embarked for India in the *Malabar*. Surgeon-Captain Durant has proceeded in the *Britannia*. Surgeon-Lieutenant Evans has been transferred to Gosport, and Surgeon-Lieutenant Milner to Portsmouth.

ARMY MEDICAL STAFF.

Surgeon-Lieutenant-Colonel James McGann retires on retired pay.

INDIA AND THE INDIAN MEDICAL SERVICES.

Surgeon-Lieutenant E. Hindmarsh, Bihar Light Horse, having completed three years' service is promoted to the rank of Surgeon-Captain. The services of Surgeon-Captain H. Smith, Bengal Establishment, Medical Officer, Mushkaf-Bolan State Railway, are placed at the disposal of the Home Department. Surgeon-Major C. P. Lukis, Civil Surgeon, 2nd class, Fyzabad, to officiate as Civil Surgeon, 1st class, Agra, vice Surgeon-Lieutenant-Colonel Willcocks, granted privilege leave. Surgeon-Major J. F. Tuohy, Civil Surgeon, is transferred from Saharanpur to Bareilly. Surgeon-Captain H. W. Elphick, Civil Surgeon, from Muzaffarnagar to Saharanpur, and to hold Visiting Medical Charge of the Muzaffarnagar district in addition to his other duties.

NAVAL MEDICAL SERVICE.

Surgeon R. F. Bate to the *Briton*.

ARMY MEDICAL RESERVE OF OFFICERS.

The promotion to the rank of Surgeon-Major of Surgeon-Captain George Middlemiss, M.D., is antedated to Oct. 30th, 1894. The undermentioned Surgeon-Captains, 1st Banff Volunteer Artillery (Southern Division Royal Artillery), to be Surgeon-Majors:—William Fergusson, M.D., and William Lemmon Stewart, M.D. The undermentioned officers to be Surgeon-Captains:—Surgeon-Captain Francis William Grant, M.D., 1st Banff Volunteer Artillery (Southern Division Royal Artillery); Surgeon-Lieutenant William Beddie, M.B., 1st Banff Volunteer Artillery (Southern Division, Royal Artillery); and Surgeon-Captain Joseph Adams, M.B., 1st Volunteer Battalion the Prince of Wales's Volunteers (South Lancashire Regiment). Surgeon-Lieutenant Alexander Barclay Lyon, M.B., 1st Banff Volunteer Artillery (Southern Division, Royal Artillery), to be Surgeon-Lieutenant.

VOLUNTEER CORPS.

Artillery: 1st Cheshire and Carnarvonshire: Surgeon-Lieutenant R. L. Jones to be Surgeon-Captain. 3rd Durham (Western Division, Royal Artillery): Surgeon-Lieutenant F. W. Sinclair, M.B., to be Surgeon-Captain. *Rifle:* 3rd Volunteer Battalion the King's (Liverpool Regiment): Surgeon-Lieutenant W. J. M. Barry resigns his commission. *Memoranda:* 1st Argyll and Bute Volunteer Artillery: The undermentioned officers retire:—Honorary Assistant-Surgeon J. Mackenzie and Honorary Assistant-Surgeon J. MacGowan, M.D. 1st Volunteer Battalion the Royal Scots Fusiliers: Surgeon-Major R. Munro, M.D., retires, with permission to retain his rank, and to continue to wear the uniform of the Battalion on his retirement.

INDIAN SANITARY AND MEDICAL REPORTS.

The Army Sanitary Commission, in a recently published memorandum on the report of the Sanitary Commissioner with the Government of India for 1893, calls attention to the voluminous statistical tables embodied in these reports, and states that the elaborateness of detail with which they are prepared, although evidencing great care and industry on the part of the compilers, is nevertheless often a source of embarrassment to those desirous of ascertaining the recorded facts and of obtaining a history of the principal events of the year. The Commission makes numerous suggestions for curtailing and remodelling the tabular portion of the reports. Some years ago we adverted to this subject. Indian reports and Blue-books bristle with statistics and figures which tend to hide rather than elucidate and accentuate the points of real interest and requiring attention. Now that arrangements have been made by which the three Presidential armies have been replaced by four army corps the time seems to have come for reconsidering this matter and for seeing whether it cannot be put upon another and improved basis. The geographical areas into which the European and native armies have been grouped are to a large extent arbitrary and have little or no bearing on the study of epidemic disease. The medical history of corps and the sanitary and medical history of important stations should be recorded for several more or less obvious reasons. As the Sanitary Commission urges, the question as to the order in which stations could be best occupied by European regiments during their tour of Indian service might, for example, be settled on reliable data. We should like to hear, moreover, that something like a handbook or guide embodying all the more important sanitary, medical, topographical, and local points connected with every big military station had been compiled and was available for reference. Military and medical officers at the various commands or large military stations should have something of the sort to which they could refer and from which they could obtain all necessary information about the climate, the geographical features, water-supply, diseases, &c., of any given district or station.

ARMY MEDICAL SCHOOL, NETLEY.

The seventy-first session of the Army Medical School will commence on Wednesday, Oct. 2nd. The session will be attended by twenty-eight surgeons on probation, ten for admission to the Army Medical Staff and eighteen for admission to the Indian Medical Service. The following are the lists of those about to join the school:—

ARMY MEDICAL STAFF.

F. S. Brereton.	M. L. M. Vaudin.
J. C. B. Statham.	W. A. Ward.
P. J. Probyn.	E. G. Forrest.
R. M. C. H. Cooper.	A. W. Hooper.
A. H. Waring.	E. C. Hayes.

INDIAN MEDICAL SERVICE.

W. W. Clemesha.	K. V. Kirkday.
A. W. R. Cochrane.	R. R. Rost.
V. E. H. Lindesay.	C. B. Harrison.
R. P. Wilson.	W. J. Niblock.
N. R. J. Rainier.	E. L. E. F. Payne.
R. L. Perry.	N. P. O'G. Lalor.
J. A. Black.	J. C. Robertson.
J. H. Symons.	C. D. Dawes.
C. R. Bakhla.	M. B. Pinehard.

The *Broad Arrow* says: "Enteric fever is causing havoc among our young officers at Bangalore. The recent death of Second Lieutenant MacTier, of the Dorsetshire Regiment, at the Station Hospital, where he was under treatment, brings the mortality up to three from this disease, while five deaths in all have occurred among the subalterns of the garrison. All officers who have been quartered at Bangalore are well aware that the drinking water for the cantonment is derived from a tank supplied by an open channel which passes through a native bazaar, kept clean by sweepers. Forming part of the wall of the supply channel is the main sewer from the same area. This sewer is so ingeniously arranged that when overcharged with storm water relief is obtained by discharge into the water-supply channel, and thus into the tank. These facts were laid before the Indian Medical Congress by the Sanitary Commissioner, Madras, in an instructive address on sanitation in India."

THE VOLUNTEER OFFICERS' DECORATION.

The Queen has conferred the Volunteer Officers' Decoration upon the undermentioned officers of the Volunteer Force:—*North-Eastern District: Artillery:* 2nd West Riding of Yorkshire (Western Division, Royal Artillery): Surgeon-Lieutenant-Colonel Isaac Mossop. 1st Volunteer Battalion the Duke of Wellington's (West Riding Regiment): Surgeon-Lieutenant-Colonel Thomas Michael Dolan. 1st Volunteer Battalion the Sherwood Foresters (Derbyshire Regiment): Surgeon-Lieutenant Thomas Johnston, retired. *Western District: Rifle:* 1st (Brecknockshire) Volunteer Battalion the South Wales Borderers: Surgeon-Lieutenant-Colonel Philip Edward Hill.

CHRIST'S HOSPITAL.—Prizes of £50, £40, and £30 respectively are offered for the three best essays on the condition of Christ's Hospital and the means of surmounting its difficulties. Intending competitors should apply to Sir J. Causton and Sons, 9, Eastcheap, E.C., for a copy of "The Christ's Hospital Controversy" and for further particulars and suggestions. The essays must be delivered on or before Dec. 31st, 1895.

Correspondence.

"Audi alteram partem."

THE THROAT HOSPITAL, GOLDEN SQUARE.

To the Editors of THE LANCET.

SIRS,—While we thought it expedient to announce publicly the severance of our connexion with the Throat Hospital, we did not think it necessary in the interests of the institution to state at the time our reasons for so doing. As, however, others think differently, we now ask you to publish the following statement. We are, Sirs, yours obediently,

SUTHERLAND,
R. COURTENAY WELCH,
GREVILLE MACDONALD.

Sept. 25th, 1895.

STATEMENT.

At the annual general meeting of the governors and subscribers of the Throat Hospital held on April 10th last, after Mr. Courtenay Welch and two others of the retiring members had been unanimously re-elected, four other gentlemen (Dr. Norris Wolfenden, a former member of the honorary medical staff of the hospital, Major Probyn, Mr. Allom, and Mr. Osborne) were, after opposition, elected to serve on the Committee of Management. A few days later it was discovered that among those who had voted in support of these gentlemen were several persons who, in order to obtain a colourable qualification to vote under By-law 16 ("No annual subscriber shall be entitled to vote until after the payment of his subscription for the second year"), had, a few days before the meeting, paid to the secretary a subscription with the request that one moiety should be entered as a subscription for 1894 and the remainder as for 1895, one of the four gentlemen thus elected having himself in this manner obtained his qualification to vote. Although some of these payments were made just before the monthly committee meeting of April 2nd, the secretary made no mention to the committee of this unusual procedure, nor did he at the annual general meeting, when the qualification of one voter was challenged, give any hint that anything irregular had taken place. At the next committee meeting, held on May 7th, Dr. MacDonald proposed and Mr. Welch seconded a resolution to the effect that a special general meeting of the governors and subscribers should be called to reconsider the opposed resolutions passed at the annual meeting. When this proposal was rejected, and the committee thus refused to allow the question to be reopened and the facts laid before the subscribers, Dr. MacDonald and Mr. Welch at once resigned. The Duke of Sutherland, at the earnest request of Mr. G. H. Pember, the new chairman, and of Dr. MacDonald, who, acting independently of each other, pointed out the irreparable injury which his Grace's resignation would inflict upon the hospital, consented to defer any definite step until it could be ascertained whether the four gentlemen, the validity of whose election had been called in question, would voluntarily retire. A deputation from the committee subsequently waited upon the president, but as the arrangement he had suggested was not carried out, he had no alternative but to resign.

"THE PICRIC ACID TEST FOR SUGAR IN THE URINE."

To the Editors of THE LANCET.

SIRS,—Having been much away from home during the last few weeks I have only just now seen Professor Campbell Black's letter on the above subject in your issue of Aug. 24th. The Professor states that the addition of picric acid and potash to urine containing sugar causes a reddish colouration in the cold, and that the same results occur in perfectly normal urine, the reaction being more marked in urine containing an abundance of uric acid. The facts are as thus stated, but I beg permission to give the explanation which your correspondent omits to give. The reddish colouration with picric acid and potash *at the ordinary temperature* in urine, whether normal or saccharine, is due entirely to kreatinin, the strongest solution of glucose having, when cold, no reducing action on picric acid and potash until after an interval of at least an hour. The more marked reaction in urine with an excess of uric acid is due to the associated excess of kreatinin, and not to uric acid, which has no reducing action upon picric acid, although it has upon Fehling's solution.

The Professor's statement that when urine containing sugar to which picric acid and potash have been added is boiled the fluid assumes "a claret colour, which passes on cooling to a deep port wine colour" suggests the question, How often has he used the test, the action of which he so inaccurately describes?

A first year's student may be taught in a quarter of an hour the strikingly different results of boiling for a minute a normal and a saccharine specimen of urine to which the picric acid test has been added. The former assumes a bright red colour, while urine containing sugar becomes so black that not a gleam of light appears through the middle of the test-tube. Has the learned Professor ever met with a sample of port wine as dark as this? If Professor Campbell Black had done me the honour to read carefully two papers of mine which have been published in THE LANCET, one on "Some Common Sources of Error in Testing for Sugar in the Urine,"[1] and the other on "The Absence of Sugar from Normal Urine proved by a New and Simple Method,"[2] he surely would not have asserted that the picric acid test "is eminently fallacious and should be discarded for either qualitative or quantitative analysis of sugar in the urine." In opposition to this condemnatory assertion I venture to predict that at no distant period every competent observer will acknowledge that as a qualitative and quantitative test for both albumin and sugar in the urine picric acid is the most valuable test agent that modern science has placed in the hands of the profession.

I am, Sirs, yours faithfully,

Savile-row, Sept. 23rd, 1895. GEORGE JOHNSON.

"PRESYSTOLIC APEX MURMURS."

To the Editors of THE LANCET

SIRS,—Having read with pleasure and instruction Dr. A. G. Phear's excellent paper on Presystolic Apex Murmur without Mitral Stenosis in THE LANCET of Sept. 21st, and appreciating his very cogent argument in favour of the theory he advances in explanation of the bruit under these circumstances, I desire to offer a remark upon one point to which he makes reference. The two factors, in his opinion, productive of the presystolic bruit are narrowing of the mitral orifice from any cause and the occurrence of sufficiently forcible auricular contraction to generate a fluid vein. Were we to accept this second factor as the efficient cause of the murmur the condition might more precisely be termed auricular systolic murmur—a term which, if my memory does not mislead me, has already been applied to it.

It has long appeared to me, however (and so long ago as 1878 I published the view), that the most potent cause of the mitral diastolic bruit, after the organic narrowing, actual or potential, necessary, is the condition of the left ventricle and the aspirative force of that cavity. As Dr. Phear remarks, the so-called presystolic bruit may occupy varying portions of the diastolic interval. It may in time be possible to associate more exactly the bruit of a certain phase of that interval with a special organic condition, but all we can at present say is that the bruit is not systolic, and is therefore diastolic, while a frequently associated phenomenon is the time, situation, and character of the thrill. The latter frequently so exactly corresponds in all its phases to the audible phenomenon that one may by palpation arrive at a diagnosis without the aid of the stethoscope. The conditions, moreover, with which the non-stenotic bruit in question is usually associated—namely, hypertrophy and dilatation of the left ventricle from aortic valvular disease or adherent pericardium—appear to me to strengthen my contention that it is the aspirative power of that cavity rather than the propulsive power of auricular systole which is operative in the production of at least the greater part of the mitral diastolic bruit. The fugitive character of that sound, moreover, seems to me to depend rather upon a variation in the force of valvular contraction, and its consequence ventricular diastole, than upon fluctuations in the power of auricular contraction.

A valuable aid to the diagnosis of apex diastolic bruit dependent upon non-stenotic conditions is, in my opinion, the too much discarded sphygmograph.

I am, Sirs, yours faithfully,

ALEXANDER MORISON, M.D.

Upper Berkeley-street, W., Sept. 23rd, 1895.

To the Editors of THE LANCET.

SIRS,—Referring to the subject of presystolic apex murmurs, can there be a thrill without a corresponding murmur? In Dr. A. G. Phear's interesting paper on Presystolic Apex Murmur without Mitral Stenosis I notice the record in Case 2 of the occurrence on one occasion of a thrill of presystolic rhythm confined to the region of the apex, unaccompanied by a corresponding presystolic murmur.

[1] THE LANCET, July 7th, 1894.
[2] THE LANCET, Jan. 12th, 1895.

The observation raises a point important clinically. I suppose the prevailing view is that, whilst a murmur need not be felt as a thrill, a thrill will always be heard as a murmur. Is this prevailing view incorrect? So far as my own experience goes I should say that wherever I have felt a thrill I have heard a corresponding murmur; but my impression is that on more than one occasion I have felt some difficulty in assuring myself that the thrill felt and the murmur heard coincided accurately in point of time. Physically regarded, it is, I suppose, quite possible to conceive that the vibrations or ripples should be so coarse and infrequent as to be palpable and not audible; but in practical medicine is this the case? If it be the case the hand should, I think, take cognisance of the thrill as special in character—special by reason of its extreme coarse or undulatory character.

I am, Sirs, yours truly,

HARRINGTON SAINSBURY.

Welbeck-street, W., Sept. 23rd, 1895.

To the Editors of THE LANCET.

SIRS,—Dr. Phear, in his paper upon the occurrence of a presystolic murmur without mitral stenosis, mentions the presence of thickened and shortened chordæ tendineæ in his cases, and suggests that, although the mitral orifice was of normal size, a virtual stenosis may have been produced during diastole by the reaction of these shortened cords upon the edges of the mitral flaps. Although mitral stenosis may generally be said to be as much a disease of the chordæ tendineæ as of the flaps of the mitral valve, cases may undoubtedly occur in which some thickening and shortening of the chordæ tendineæ exist without any associated narrowing of the mitral orifice. Only to-day I made a post-mortem examination upon such a case. While, however, I believe in the possibility of such a lesion I do not think that this shortening of the chordæ tendineæ can easily produce the virtual narrowing of the mitral orifice that Dr. Phear supposes may be present during diastole. When the edges of the mitral flaps remain quite flexible it seems reasonable to conclude that the orifice will maintain its full circumference while blood is flowing from the auricle to the ventricle, since during the time the flow continues the pressure upon the auricular surface of the flaps must be greater than upon the ventricular. Dr. Phear states that artificial traction upon the musculi papillares will demonstrate how the flaps can be drawn down and the orifice narrowed. It is doubtless true that the mitral orifice can be narrowed by such traction, but the excess of tension is upon the ventricular edges of the flaps in such a case, and before this state of tension could be reached in the ventricle during diastole it seems to me that the flow of blood from the auricle would cease. Allowing, however, that such a condition could be present, it could only occur when the ventricle had become filled or nearly filled with blood—in other words, the virtual stenosis would occur towards the end of diastole and the murmur it occasioned be presystolic in time. But in one of Dr. Phear's cases the murmur was sometimes early diastolic in time. This murmur could hardly have been produced by a virtual stenosis of the character he suggests. In closing I may say that since reading Dr. Phear's paper I have examined the mitral orifice of the heart from the case of presystolic murmur occurring with disease of the aortic orifice recorded by me in THE LANCET. There can be no suspicion of shortened chordæ tendineæ being the cause of the murmur in that case. Not only do I not believe that the *veine fluide* theory will explain anomalous presystolic murmurs, but the true presystolic murmur is often of such peculiar character and so different from other murmurs that it seems possible that its true explanation has yet to be discovered.

I am, Sirs, yours truly,

Pembroke-road, Clifton, Sept. 24th, 1895. THEODORE FISHER.

"HOSPITAL ABUSE AT BRIGHTON."

To the Editors of THE LANCET.

SIRS,—In your issue of Sept. 21st you quote from a letter of Dr. Waring with respect to hospital abuse at Brighton. Whilst fully endorsing your view as to the kindly spirit in which the letter is written, yet as regards the most important charity mentioned there are additional facts which may modify the judgment of many. 1. The Sussex County Hospital received during the first six months of this year 35·8 per cent. of its in-patients and 21 per cent. of its out-patients from the county, as opposed to Brighton and Hove. Hence the patients are drawn from a population of considerably over 150,000. 2. In the annual report for the year ending 1894 the following paragraph occurs: "A searching scrutiny was made this year by a subcommittee, which showed that 96 per cent. of the cases (out-patients) were entirely fit and proper subjects for gratuitous treatment, and though in the remaining 4 per cent. sufficient information could not be obtained, it was thought that even in these cases, were closer scrutiny possible, it might be shown that several could be received without any abuse of the charity." May I suggest that the primary cause of hospital abuse is the carelessness with which subscribers give their tickets.

I am, Sirs, yours faithfully,

ADOLPHUS J. RICHARDSON,
Assistant Physician to the Sussex County Hospital.

St. John's-terrace, West Brighton,
Sept. 24th, 1895.

"THE PHYSIOLOGY OF DEATH BY ELECTRIC SHOCK."

To the Editors of THE LANCET.

SIRS,—The note which you inserted immediately after my letter[1] calls attention to a fact with which I have long been acquainted and of which I venture to think a complete explanation can be given. I must, however, premise my remarks by calling attention to the fact that it is an error to suppose that I regarded death from electric shock as "simply a violent disturbance of the normal magnetic lines of flow through the body," although such disturbance must occur. What I said was "that it is impossible to separate the physics of the cause of death from electric shock from the physics which are continuously operating to maintain the phenomena of life." I then proceeded to show that the passage of the arterial blood over the nerves and other conductors of impressions, in proportion to the oxyhæmoglobin present, which is a highly magnetic substance, gives rise to currents of energy through the nerves which from their effects appear to be of the same character as the currents of energy obtained by passing an electric current through a nerve or muscle. This conclusion is in accordance with the generally received opinion that electricity and magnetism are manifestations of one and the same force. Thus, in the case of death from electric shock and in the process of life under normal conditions the active cause of the phenomena is found to be the same, the different result in each case being due to the different degree in which the force was present. My remarks about the magnetic lines of force through the body due to the magnetism of the earth do not materially affect this argument. They were intended to elucidate one of the causes of the magnetic energy possessed by the corpuscles of the arterial blood. Before passing on I may mention that I did not wish to imply that an electric charge might not enter the body at any point and in doing so by its disruptive effects be productive of such lesions as would necessarily prove fatal. My observations were directed more especially to showing the cause of the phenomena recorded by Dr. A. M. Bleile.

I now come to the explanation of the facts brought forward in your note. You say that "if death from electric shock were simply a violent disturbance of the normal magnetic lines of flow through the body, we should at least expect marked physiological effects in animals placed in strong magnetic fields of large electro-magnets, for under these conditions the lines of magnetic flow through the body are completely altered. No such effects, however, are manifest, the man or animal placed under such conditions being completely unconscious that anything abnormal is going on." I must in the first place direct attention to some well-known facts of magnetism and electricity. 1. Every form of matter has what may be called its own specific capacity for magnetic energy. In other words, every form of matter, when suspended in a magnetic field, assumes a definite axial inclination with reference to the poles of the magnet, which is peculiar to itself; and in accordance with its axial inclination any particular substance is termed magnetic or diamagnetic. 2. This magnetic capacity is most apparent in soft iron. In iron, therefore, we shall find the clearest

[1] THE LANCET, Sept. 14th, 1895.

example of the effect produced upon a body by placing it in a magnetic field.

Now a bar of iron when brought under the influence of an electro-magnet becomes itself a magnet, possessing north and south poles and manifesting all the phenomena of magnetism. This manifestation of magnetism is generally believed to be due to a particular arrangement of the molecules of the bar of iron effected by the power of the magnet—an arrangement in which the axes and similar poles of the molecules are made to point in the same direction. In the case of steel it is thought that the molecules, after being once arranged with their poles all pointing north and south, retain that position owing to the material condition of the bar. Consequently, when soft iron, steel, or, indeed, any form of matter—magnetic or diamagnetic—is subjected to the influence of a magnet, the power of the magnet so far is of little consequence, and the only result that can occur as a direct effect of the magnetism is a change in the direction of the molecules, determined by their own individual character and in accordance with the force which is acting upon them. But, further, it is probable that the diamagnetic molecules in the living body are continuously rotating upon a definite axis, the axis of rotation in every case being determined by the relation which each form of matter has to the magnetic force. I venture to hold this opinion because a sphere of copper (which is one of the most diamagnetic forms of matter) will rotate upon its axis when suspended in a magnetic field;[2] and I have myself ascertained from experiment that the direction of the rotation depends upon the position of the magnetic poles in relation to the sphere, whilst the rapidity of the rotation is in proportion to the intensity of the magnetic field. From this fact in the case of copper I think we may not unjustly infer that other forms of diamagnetic matter, if subjected to the same conditions, would behave in a similar way; and if so, I think that we have in this fact a cause for those rotations under which inanimate matter is converted into living cells in the animal body through centripetal and centrifugal force, as described by Dr. Lionel Beale,[3] whilst the selective influence which each form of matter, through its specific constitution and magnetic capacity, exercises would determine the character of the matter which each molecular germ withdraws from the nutrient plasma flowing over it. The character of the matter abstracted being thus determined by the polarity of the matter composing the germ, the importation of other matter of any kind into the blood corpuscles or into any tissue of the body, which is inconsistent with perfect health, would be productive of modifications of motion and of function, the natural tendency of which would be to produce disorder, disease, and death. In fact, this theory says that all disorder or disease is as much the outcome of the introduction of material particles into the system which should be foreign to it as the natural body is the result of the particular mode in which certain forms of matter under the influence of an all-pervading force are converted into it. I cannot, therefore, perceive that there would be any modification of natural phenomena under the conditions to which you refer, other than those which are consistent with the maintenance of the phenomena of life in a state of perfect health. In fact, it is clear that, under the known relations which exist between matter and the magnetic force, the only influence which magnetism can exercise upon the living body is to render the polarity of every atom engaged in the maintenance of life more marked, and therefore more capable of maintaining those phenomena which are naturally evolved during life by the material elements. And if this be so, there is no reason why an animal or person placed in the field of a strong electro-magnet should be conscious of the changed conditions; for as we are not conscious of natural and healthy bodily processes, such as the passage of the blood through the arteries and veins, the digestion of food, and the formation of tissue, so are we conscious of influence from an external source, such as the electro-magnet in question, only to the extent to which natural functions of the body are affected or modified thereby. But when the body is subjected to the action of the electric force a totally different condition of things exists, and the resulting phenomena must vary with the extent of the shock, whether it be in the form of static or dynamic charge. And this leads me on to reply very briefly to the note of Dr. McClure which appeared in the last issue of THE LANCET.

In the first place I would remark that in discussing the nature of the conductive or the dielectric properties of matter a due recognition of the broad principle that all bodies are conductors of electricity will tend to render this rather abstruse subject somewhat more easy of comprehension. It is a fact that every form of matter has its own specific power of conducting a current; and some bodies transmit the force with such great resistance that Faraday gave them the name of dielectrics, for they appear to convey the force from molecule to molecule more by induction than by conduction. In these substances, therefore, in proportion to the greater resistance which they oppose to the passage of the current, the presence and force of the electric energy will be most clearly manifested by the production of heat and disruptive effects. In the animal body the blood is unquestionably the best conductor—i.e., it is the substance which most strongly attracts the charge of electricity and transmits it to the earth. In this respect it performs the function of an ordinary lightning conductor. But the other tissues, in proportion to their resistance, may be classified as dielectrics, for they tend to throw the energy outwards more or less at right angles to the direction of the current, and they are in such a degree liable to suffer from disruptive effects. Whilst thanking Dr. McClure for his criticism of my paper, I would add that I quite concur with him in his remark that in the proper understanding of these phenomena lies the solution of many physiological problems. But I go further than this, and express my conviction that this magneto-electric theory of life involves the principle by which almost *all* vital phenomena may be explained.

I am, Sirs, yours faithfully,

Reading, Sept. 21st, 1895. RICHARD C. SHETTLE.

[2] I exhibited this experiment at a conversazione of the Royal Society in May, 1887, and subsequently before the Physical Society of London.

[3] Vide Protoplasm: or Matter and Life, by Lionel S. Beale, F.R.S., third edition, p. 277, &c.

"DIPHTHERIA IN LONDON."

To the Editors of THE LANCET.

SIRS,—I should like to say a word with reference to the annotation under the above heading which appeared in THE LANCET of Sept. 21st. During some investigations into an outbreak of scarlet fever I came upon some conditions and usages of ordinary elementary school life which appeared to me to be likely to have a distinct, and apparently previously unrecognised, influence on the spread of such diseases as scarlet fever and diphtheria. I found that the slates and pencils were used by the children quite indiscriminately, and that when it was necessary to rub out sums, copies, &c. it was done by licking with the tongue and using saliva; and, moreover, that the slates were never washed. Taking into consideration the fact that the naso-pharyngeal secretion in scarlet fever and diphtheria carries infection long after the patient is apparently convalescent, it is easy to understand that the circumstances above mentioned would have a potent influence in spreading these diseases.

I am, Sirs, yours faithfully,

Halesowen, Sept. 21st, 1895. T. BRETT-YOUNG.

"THE MANCHESTER MEDICAL CRICKET CLUB."

To the Editors of THE LANCET.

SIRS,—There is a slight inaccuracy in the article on the above subject in the current number of THE LANCET. This has been the fourth season since the club was constituted, and for two seasons previously a few matches were played, which led to the formation of the club.

I am, Sirs, yours faithfully,

G. H. BROADBENT.

Ardwick-green, Manchester, Sept. 21st, 1895.

"THE GRIEVANCES OF THE TELEGRAPH SERVICE CLERKS."

To the Editors of THE LANCET.

SIRS,—I have no desire to extend any further what would doubtless be an unprofitable controversy concerning the authority of the figures I have drawn from the United Kingdom Postal and Telegraph Service Benevolent Society's reports with reference to the health and mortality of telegraph clerks. Suffice it to say that after thirteen years'

service in the telegraph department I am convinced that the members of the society are a representative body. It will be for the statistics of the department to prove the accuracy or otherwise of my confident belief in the typical value of my figures. In the meantime it would, however, be well to draw your attention to the inaccuracy of your information concerning the "declaration of health" rule. This rule was certainly in force nine years ago when I became a member of the society, and to the best of my belief its origin was coeval with the society's. The point in my evidence which struck me as being most conclusive was that relating to the annual average sick absence. This, I believe, I proved by comparison to be greatly in excess of that of the general populace, and if consideration is had to the facts of initial health, low age, and free medical attendance it seems to me to point conclusively to some serious conditions prejudicial to health which are obviously and continuously undermining the constitution of the men. Thanking you for the space already allotted to this subject,

I am, Sirs, yours faithfully,

West Brompton, Sept. 18th, 1895. CHARLES H. GARLAND.

"COUNTRY PRACTITIONERS AND LOCUM-TENENTS."

To the Editors of THE LANCET.

SIRS,—I can sympathise with all your correspondent states in his letter to THE LANCET on the 31st ult. concerning locum-tenents. When practising at Storey's Gate, Westminster, some ten years since I employed some four or five of these gentlemen (at three guineas per week, with travelling expenses), and I am sorry to say that I was singularly unfortunate with each of them. Without entering fully into details I found one and all lazy, neglectful to the patients under their care, careless in their work, and generally given to the charms of Bacchus. One man robbed me of an account of about £8 which he received from a patient on my behalf, and bolted, after being in charge but a few days, leaving me to settle a bill at a hotel for bottled ale, spirits, and other luxuries, my holiday being necessarily abruptly brought to an end by these and other delinquencies of this worthless man, whom I have not seen since. For more than five years I adopted the work of a locum-tenent, and in *no* house was I so unlucky as to meet with "an untidy woman to come in occasionally during the day to see if I required anything," where the kitchen did duty for the consulting and sitting rooms, and the scullery for the kitchen, wherein the various meals also were prepared, as stated by "Locum-tenent" in THE LANCET of Sept. 14th. On the contrary, I found each of the residences well appointed, the board all that one could desire, the stipend liberal—my fees ranged from three to five guineas weekly, with railway and cab fares—and the arrangements for a stranger excellently planned. Indeed, I always felt "in clover." On retiring from this employment in 1877 I had a first-class connexion, representing my numerous principals time after time, and I had constant occupation, which I now and ever shall remember with very great pleasure.

I am, Sirs, yours faithfully,

J. FFRENCH BLAKE.

High-street, Putney, S.W., Sept. 14th, 1895.

GUARDIANS AND MEDICAL OFFICERS.

To the Editors of THE LANCET.

SIRS,—I shall feel obliged if you will kindly publish the following case in your correspondence columns and give me your opinion on the same, and I also hope I may be favoured with an expression of opinion by some Poor-law medical officers. The medical officer of a certain union receives an order from the relieving officer to attend a young man. He finds him suffering from influenza and sore-throat with great difficulty of swallowing. On Aug. 1st he gave the usual recommendation form for one pint of port wine; and on Aug. 5th another for two pounds of beef for beef-tea. After this an abscess formed at the root of one of the molar teeth and the jaws became fixed; with great difficulty the tooth was extracted, but the jaws remained fixed for many days. On the 18th a further supply of two pounds of beef is advised, and on the 23rd, he being obliged to live entirely on suction, a further supply of two pounds of beef and also two pounds of linseed meal for poulticing. The relieving officer allowed the linseed meal, but delayed the beef, on the ground, I believe, that the order of the 18th was not presented until the 20th and it was too soon to grant more: it was given the following day, the 24th. The 24th was board day, and I attended as guardian and called attention to the fact. The same thing had occurred before in the case of an old woman with bronchial pneumonia for whom two pounds of beef and half a pint of brandy were recommended. The beef was granted and the brandy refused because the relieving officer said they could buy that themselves in the village. I must now state that for many years I was medical officer to the union. Having resigned and having been elected guardian, I supported the medical officer. I contended that it is not the province of the relieving officer to decide on the quantity of beef required. I find an opinion expressed that the relieving officer was acting quite within his rights in refusing if he thought fit, and as this may be prejudicial in the future I want to get an opinion from THE LANCET. I know a medical officer can only recommend, but when once the principle of relief is established as necessary the medical officer is the judge of the quantity required and not the relieving officer. As the law now stands it appears that a relieving officer can give an order to the medical officer and compel his attendance, and at the same time control his medical extras. This, I think, should be altered, and any recommendation of the medical officer should be carried out at once. The case can be reported at the next board meeting and the medical officer called upon to explain his action. I am bound to say I believe I had the sympathy of the board and of a majority of them, but as at least one influential member clearly thinks I have not made out a case, and as his opinion may influence future cases, I am desirous of a good public opinion.

I am, Sirs, yours faithfully,

Sept. 17th, 1895. A GUARDIAN.

*** It ought to be widely known that a relieving officer has *no* absolute discretion in dealing with a case of urgent necessity, and, therefore, if he refuses to carry out the medical recommendations for food and stimulants and the patient dies he can be held responsible—*vide* the case of Clark *v.* Jeslin, in which Mr. Justice Hawkins made some very severe and appropriate remarks on the conduct of the defendant relieving officer, whose conviction was confirmed. Until the present power of the relieving officer is curtailed in respect to his carrying out the orders of the medical officer it is only right that the medical officer, on refusal of his orders for medical relief being given, should personally attend the next meeting of the board and lay his case before it. Such public exposure would do much to remedy the present unsatisfactory state of affairs.—ED. L.

THE DEARTH OF MAGISTRATES.

To the Editors of THE LANCET.

SIRS,—Much inconvenience is caused in our neighbourhood owing to the fewness of the local magistrates. To a population of nearly 8000 we have three "resident" magistrates. It sounds like a joke, but only one of the three resides in the place, and he is often away ill. Another lives about a mile and a half away, and the third lives in London, nearly fifty miles away. The last-named comes down nearly every Saturday till Monday when his house is not let, and pays a regular visit in addition for the shooting. It is easy to imagine the result when it is necessary to certify a lunatic. On one occasion I had a raving maniac fighting with the police from morning till evening, when we caught the London magistrate on his way from the train. On another occasion no magistrate could be obtained and the patient could not be certified at all. The last Government was very busy in converting labouring men into magistrates—why should this one not do something to remedy the crying evil by appointing men of education—such as professional men, gentlemen farmers, &c.—without regard to county influence? I am, Sirs, yours truly,

Sept. 21st, 1895. INCONVENIENCED.

"ROUGH NOTES ON REMEDIES."

To the Editors of THE LANCET.

SIRS,—I am extremely glad to see some more so-called "Rough Notes" by Dr. Murray of Newcastle-on-Tyne in

THE LANCET of Sept. 21st, and I am sure that we country practitioners value a practical paper such as he occasionally (I wish it were oftener) sends to THE LANCET far more than all the many learned and scientific papers so frequently to be read in its columns. Unless one has opportunities of keeping up one's scientific knowledge these latter are frequently "out of our depth," and it is the shorter and more practical articles that we instinctively turn to and read; for in our multifarious duties we have no time to speculate and theorise in matters of diagnosis &c., but must have our remedies ready in our minds, and they must be of a practical nature or our patients cannot understand them. I hope others of your readers will be induced to give us some notes on treatment in a short and concise form from time to time.

I am, Sirs, yours faithfully,

Sept. 21st, 1895. M.D.

THE FIFTH INTERNATIONAL CONGRESS OF OTOLOGY.

(FROM A SPECIAL CORRESPONDENT.)

Introductory.

AURAL MEDICINE is one of the very youngest of the "specialties." Its tardy appearance on the professional field is, however, quite explicable; for one thing, the exceeding complexity of the organ of hearing, anatomically, physiologically, and pathologically considered, imposes greater difficulties on its investigators than any other of the "gateways of knowledge." It was not till late in the seventeenth century that we gained a first glimpse into its anatomy, Guichard du Verneu, demonstrator of anatomy at the Jardin des Plantes, having been the first to put the structure and mechanism of the ear in an intelligible light.[1] After this came Valsalva of Bologna, whose masterwork[2] marks a fresh advance in our knowledge of the anatomy, the physiology, and the pathology of the organ. But neither French nor Italian physicians improved much on the traditional treatment of injuries to the ear, the invention of the ear-mirror by Fabry and of an artificial ear-drum (made of a piece of sow's bladder stretched over a short tube) by Marcus Banzer remaining, both before and after them, the sole contribution to the remedial armoury. The first step towards a more accurate knowledge of the ailments of the inner ear was the invention of the catheterism of the Eustachian tube by Guzot, postmaster at Versailles, in 1724, and by Archibald Cleland in 1741, the former of whom introduced the instrument through the mouth, while the latter, to whom we also owe the artificial illumination of the tympanum, passed it through the nose. Notable progress in aural medicine, however, really begins with Jean Marie Gaspard Itard of Paris. He initiated the use of the catheterism of the ear-trumpet for the diagnosis and treatment of diseases of the tympanum, and this was utilised and followed up by Leon Delean, the inventor of the air-douche—a physician, by the way, who did much for the education of deaf-mutes. Later workers in the field were Karl Joseph Beck of Freiburg (1804–1844) and Wilhelm Kramer of Berlin (1801–1875), the founder of auscultation of the middle ear. The more recent work of Wilde, Toynbee, Tröltsch, De Rossi, and others belongs to contemporary history—familiar to the members of the last and greatest, because most systematic, association for the promotion of aural medicine, the International Congress of Otology. Of those members few have won a more honourable record than the comparatively young president of the fifth Congress, about to assemble in Florence, Dr. Vittorio Grazzi. Born at Sinalunga, near Siena, he entered on the study of medicine in the Sienese school, and obtained with unusual distinction his "Diploma di Laurea" (graduation in medicine) on July 22nd, 1872. His subsequent career has been one long march of honourable qualifications, certified by testimonials from masters in the science of the healing art such as Pacini, Paoli, Morelli, Ghinozzi, and others among his compatriots, and from Peter, Fauval, Ladreit de la Charrière, Gellè, Miot, Barker, Morell Mackenzie, and others abroad. In 1884 Dr. Grazzi obtained by examination the "Decreto della Libera Docenza in Otologia" in the Roman school, and thereafter received authorisation to give a free course of lectures in aural medicine in the Istituto di Studi Superiori at Florence. At the instance of Dr. Guido Baccelli, now Minister of Public Instruction, His Majesty King Humbert conferred on him the honour of Cavaliere of the Crown of Italy in 1884. Since then he has served on many commissions, educational and professional, and was a prominent member of the Organising Committee of the Otological Section of the Eleventh International Congress held in Rome in the spring of 1893. A more recent distinction is his appointment as Professor of Oto-Rhino-Laryngologia in the University of Pisa, a post he fills with yearly enhanced acceptance, and which, from being an occasional, has under his auspices become a permanent adjunct to the medical curriculum of that seat of learning.

Professor Grazzi's connexion with the Continental and the British School of Medicine is of long standing. In February, 1875, he obtained by examination the "Posti di Studio Biringacci" (travelling fellowship) of Siena, and also by examination the "Alunnato Jacchini" (a similar foundation) of Florence, enabling him to spend eight years at the leading cliniques of Europe. In the two scholastic years 1877–78 and 1878–79, during which Dr. Grazzi resided in Paris and London for the special study of otology and rhinolaryngology, he enjoyed an extraordinary money-grant from the Ministry of Public Instruction. The fruits of this comprehensive and accurate course of study he has given to the world in many publications, principally in his capacity as director of the "Bollettino delle Malattie dell' Orecchio, della Gola, e del Naso," his able and impartial editing of which obtained him gratifying recognition at more than one Congress, national and international. His "Manuale Completo d'Otologia: compilato per i Medici-Chirurghi e per gli Studenti" enjoys exceptional popularity in the Italian schools. He has also translated the American works on "Aural Diseases" by Dr. Buck and Dr. Lefferts of New York, and has long been the quasi-official *internuntius* between the Italian and the English-speaking world in the field of otology.

The general business of the Congress will be concentrated on the following "theses," each of which will form the subject of a "full-dress debate":—

1. **The Cure of Intra-cranial Abscesses produced by Purulent Maladies of the Ear. Reporter: Dr. J. Barr of Glasgow.**
2. **The General Cure of Aural Disease. Reporter: Dr. Gellé of Paris.**
3. **The General Cure of Internal Otitides. Reporter: Professor Gradenigo of Turin.**
4. **The Present State of the Pathological Anatomy of the Labyrinth. Reporter: Professor A. Politzer of Vienna.**
5. **On the Physiology of the Middle Ear. Reporter: Dr. C. Secchi of Bologna.**

Opening of the Congress.

The Aula Magna of the Istituto di Studi Superiori presented a brilliant and animated scene at ten this forenoon, as the President of the Congress, Dr. Grazzi, with Dr. Delstanche on his right and Professor Politzer on his left, took his place on the green dais. Above him on either side were portraits of Sapolini and Moos, two of the *optimi meriti* of international otology. Nearly every European school was represented, though at the eleventh hour more than one British delegate failed to appear.

President Grazzi opened the proceedings by the announcement of congratulatory messages from the Court of the Quirinal and from other centres, political, educational, and social, all of them welcoming in the name of science and the healing art the distinguished participants, foreign and Italian, in the Fifth International Congress of Otology. The President then delivered his discourse introductory to the business of the Congress. He was listened to throughout with marked attention, and the salient points, easily discernible in the subjoined translation, touched a sympathetic chord in the distinguished auditory.

The President's Address.

"Following the example of my predecessors at Milan, at Bâle, and at Brussels, I, too, with your acquiescence, employ the French language in my inaugural discourse, regretting, however, that on such solemn occasions we no longer speak the language universally understood by our fathers. To few is it vouchsafed, as to His Excellency the Minister of Public Instruction, Dr. Baccelli, to combine in beautiful harmony

[1] Traité de l'Organe de l'Ouïe, Paris, 1683.
[2] De Aure Humana Tractatus, 1704.

the study of biological science with the culture of the Roman Classics.

"Professor Voltolini of Breslau, unhappily lost to life and to science, when inaugurating the Second International Congress of Otology, which in September, 1880, met at Milan, remarked that it was not merely by chance that Italy had been chosen for the first assemblage of otologists in Europe. That honour, said our colleague, who, though a foreigner, had Italian blood in his veins—that honour our country owed to its having given birth to Corti, whose discoveries had revealed a new world in the organ of hearing and had wrought the resurrection of our specialty. So true is this that Kölliker wrote: 'Histological investigation of the cochlea begins with Corti, whose excellent monograph should serve as a starting-point for all observers.' The successive meetings of the International Congresses of Otology (begun in America in 1876) were held at Bâle in 1884 and at Brussels in 1888—the first under the presidency of the lamented Dr. Buckhardt of Merian, the second under that of my revered friend Dr. Charles Delstanche, whom all of us with equal pleasure and pride see among us to-day, and of whom Professor Gradenigo, the Turinese otologist, reviewing the proceedings of the Brussels Congress, said: 'To this Belgian, who speaks and writes our language like an Italian, and is, in fact, Italian by sentiment and aspiration, we sons of Italy owe a special debt of gratitude.' To him, therefore, and to another otologist of world-wide renown, Professor Politzer of Vienna, who, as a sympathetic admirer of Italy's artistic beauties, loves our land as if he had been born under its sky, we owe in great measure the high honour reserved for the fatherland of Eustachio, Valsalva, Morgagni, Scarpa, Corti, and Tafani—the honour of hospitably entertaining for the second time in fifteen years the otologists of all civilised nations. I welcome our able masters; I welcome all those who wished Florence to succeed Brussels in the series of International Congresses of Otology. And since to me, *in absentiâ*, was vouchsafed the pre-eminent and undeserved honour of being chosen President of the Organising Committee of this Congress, permit me to thank you to-day from the bottom of my heart.

"During the seven years that have elapsed since you entrusted me with this honourable charge I have ever recognised my inadequacy to its duties, and have often been anxious for the success of the Congress, knowing as I did what difficulties had to be overcome. This only serves this morning to enhance my joy in seeing that the result may be regarded as assured by the number and the distinction of the otologists who, from Europe and America, have come with their contributions to science, contributions the importance of which is *en évidence* in the programme. You know one of those difficulties, and it is a pleasure, on my part, to announce that in you I have found trusty coadjutors to surmount them. When, at Berlin, Rome was selected as the seat of the International Medical Congress, the otologists there assembled resolved to hold the fifth International Congress of Otology eight days before the great Medical Congress. However, as the time for the two meetings approached, some Italian otologists formed a committee amongst themselves, and proposed the suppression of the Florentine Congress and its absorption in the otological section of the Medical Congress at Rome. I kept aloof from these deliberations, not wishing the frustration of this new vote, which did honour to the city of my adoption, and not wishing, moreover, to put myself in antagonism to high-minded colleagues as if I were annoyed at losing the Presidency with which I had been honoured. Dr. Delstanche, who up to the nomination of the definitive president of the new meeting might be considered as still in office, shrunk from the responsibility of destroying the institution of International Congresses of Otology, whose importance and usefulness, scientific and practical, he had insisted on in the discourse with which he inaugurated the Brussels meeting, and he took the sense of all who had assisted at the last Congress and had voted for Florence as the seat of its successor. This *plébiscite* by a large majority resulted in the autonomy of the International Otological Congresses being maintained. Florence was acclaimed as the seat of the fifth of the series, its meeting, however, being postponed till this year so as not to clash with the great Medical Congress at Rome. Such, then, are the reasons why seven years divide the present meeting from the last held in Brussels, while the regular interval between each should be not greater than four years—a regulation observed from the first Congress at New York in 1876 to the fourth at Brussels in 1888. These facts I have recalled in justification of the long delay.

"The joy of seeing gathered together to-day for love of science and humanity the glorious phalanx of working otologists is embittered by sad memories. Here we no longer see colleagues who never failed our meetings till the inexorable shaft of fate had laid them low. Moos of Heidelberg, that genial veteran who at last year's Roman Congress held out to me a tremulous hand with the promise that he would be with us to-day, I leave to be appropriately eulogised by Professor Politzer of Vienna. But let me recall Sapolini of Milan, who believed in the triumphs of otology at a time when the bare mention of the specialty would raise a sardonic smile on medical lips. He died on June 2nd, 1893, after having been in the first International Medical Congresses the champion of an independent section of otology. He made the earliest proposal to that effect at the International Medical Congress in Florence and never tired of repeating it at subsequent Congresses till the medical world, convinced of the progress rapidly attained by otology, at last admitted him to be in the right. I do not speak of his masterly works on aural anatomy and pathology, but I cannot forget the influence he exerted on the happy issue of the Second International Congress of Otology, at which he worthily presided in his own Milan. I wished his likeness to be present with us, if only because the proposal made by him at Bâle and accepted at Brussels to discuss certain subjects previously chosen and studied by the 'reporters' having, to-day for the first time taken effect; we might all of us, if the experiment should turn out a useful one for our labours, remember with gratitude that we owed it to Dr. Sapolini.

"At the vigorous age of fifty years there also died in 1893 Dr. Longhi, one of the secretaries at the Milan Congress, to whose scientific merits should be added this—namely, his having been the first to propose a special asylum for the cure and instruction simultaneously of children suffering from acquired deafness and destined to remain or become mutes if medicine and charity withheld from them a beneficent hand. At this time, too, we have also to lament the loss of Tröltsch, justly styled the father of modern otology. Many of us unquestionably found in the works of the great aurist of Würzburg the first spark which kindled the love of this interesting specialty. Tröltsch, regretting that his advanced age and infirm health prevented his joining us at Brussels in 1888, wrote: 'I wish my colleagues to know, and I count on you, Dr. Delstanche, to inform them that I will follow at a distance with the greatest interest the works of this assemblage, and that my liveliest sympathies are engaged in their efforts.' I call to mind Joly of Lyons, who never failed our congresses till cut off, still young, from the affection of his friends. Familiar with our language, he was the *internuntius* whereby much of our Italian otology was conveyed to France. I cannot close this sad list without a tribute of regret for the two illustrious men who, labouring in a field different from ours, rendered signal service to otology—Helmholtz, who with his powerful genius threw a flood of light on the darkness of the physiology of the labyrinth; and my fellow-student and devoted friend, Alessandro Tafani, pupil and successor of the immortal anatomist, Pacini. Tafani in this school for many years studied in man and the lower animals the intricate structure of the ear, confirming, correcting, amplifying, and even unveiling new secrets in the fine maze of the acoustic organ. Devotion to study hastened undoubtedly the untimely end of the Florentine anatomist, from whose bright intellect humanity might have hoped for important revelations.

"Having completed my task, let me turn your thoughts to the business of our Congress. Otology has made immense strides in the second half of this century, and all of you, in greater or lesser proportion, some in science, some in practice, have contributed to these. Even when importance of any kind was denied to our specialty, it was admitted that otologists had conquered something in the field of aural semeiology and pathology; but all merit was withheld from them in the curative direction which is that which most nearly interests those who suffer, physically and morally, from defective hearing. But to-day, thanks to the progress of surgery, this disparaging assertion is no longer justified, and in otological cures we obtain results certainly not less gratifying than in any other branch of the healing art. The titles of many communications announced for the Congress pointedly reveal the contemporaneous tendencies of otology and, provided we stop short of exaggerating surgical cures, as Lange of Copenhagen justly observes, I believe this

advance will raise our specialty still higher in professional estimation. If we shall have contributed to this end we shall be satisfied with our work; and in this hope, which I trust may become reality, I am happy, in the name of his Majesty Humbert I., King of Italy, to declare open the Fifth International Congress of Otology."

The President sat down amid a round of plaudits, and he was followed by other speakers, Dr. Delstanche of Brussels and Professor Politzer of Vienna, the latter pronouncing a highly finished *éloge* on Professor Salomon M. Moos, who, born in 1831 at Randegg and educated at Heidelberg, Prague, and Vienna, was a "magnifique modèle de toute une carrière de labeurs et d'efforts incessants, faits pour arriver aux sommités de connaissances scientifiques." A pupil of Henle, Hasse, Moleschott, and Chelius, he graduated at Heidelberg in 1856, when he defended his masterly thesis "Ueber den Einfluss der Pfortaderverschliessung auf die Zuckerbildung in der Leber." His "Klinik der Ohrenkrankheiten" (1876), his "Anatomie und Physiologie der Eustachi'schen Röhre (1875), and his "Meningitis Cerebro-spinalis Epidemica" (1881) are worthy of the catholic genius of the physician, who was the first by his translation of Toynbee's great treatise to familiarise Central Europe with the highest results of English otology. I have no space in which to do justice to Professor Politzer's *oraison funèbre*, for such it is, on Dr. Moos, and will simply refer the reader to its reproduction in the official "Atti," where it will be found to rank with Moleschott's monograph on Donders and Mosso's on Ludwig as a beautiful *immortelle* laid by a surviving brother on a colleague's tomb.

After this the "Bureau du Congrès" fixed the order in which the theses were to be taken, beginning with Dr. Gellé of Paris, who, at the sittings, resumed at 3.30 P.M., read a paper on the General Treatment of Maladies of the Ear. He introduced not a few important modifications in traditional practice, pointing out, *inter alia*, the use of massage in certain cases. Having exceeded nearly four times over the fifteen minutes' allowance, he found the audience indisposed to prolong the subject by criticism, and he was succeeded by Dr. Arslau of Padua with a Contribution to the Study of Adenoid Tumours. On this and the other papers that followed Dr. Gellé's, which latter deserves a more detailed notice, I shall have something to say next week.

Florence, Sept. 23rd.

THE BATTLE OF THE CLUBS.

(FROM OUR SPECIAL COMMISSIONER.)

(*Continued from p. 757.*)

THE SITUATION AT PORTSMOUTH.

ONE of the great difficulties at Portsmouth is due to the fact, as already explained, that the Portsmouth Dockyard Medical Benefit Society admits infants and juveniles as well as adults at the uniform rate of ½*d.* per head per week. I have now before me the balance-sheet of this society for the year 1894. There are the medical fund, the management fund, and the reserve fund. The ½*d.* contributions for the year brought in £898 8*s.* 7*d.*, arrears paid during the year £22 3*s.* 8½*d.*, and £2 9*s.* 8½*d.* were transferred from the reserve fund, making a total of £923 2*s.* This was divided among the three medical officers of the society, the first medical officer receiving £381 11*s.* 11*d.*, the second £351 11*s.* 9½*d.*, and the third £189 18*s.* 3½*d.* The management fund amounted to £67 8*s.* 1½*d.*, and is raised by entrance fees and a subscription of 1½*d.* per quarter per member. Then there is a reserve fund, supported by the first month's contributions, to assist in paying medical officers for those members leaving the society when in arrears. This fund amounts actually to £120, and was increased during the year to the extent of £8 13*s.* 6*d.* These figures suggest the questions as to what was the amount of work done for these various sums paid to the medical officers, and how was the work done. The duties of the medical officers are defined in the book of rules as follows: "The medical officer shall be bound to supply all necessary medicines, leeches, dressings, bandages, splints, and whatever may be required for the proper treatment of the disease or hurt, and the due performance of his duties he by his agreement engages to perform; all splints, bandages, &c., supplied by the medical officer to be returned or paid for by the member, and that members are to find their own bottles, and in all cases when able to attend at the surgery; in the event of a change of medical officers one month's notice to be given by the party requiring the same; for such services he received 2*s.* 2*d.* per annum for each member in his district, payable quarterly. Any member requiring medical attendance and unable to attend the surgery, shall give proper notice in writing to the medical officer, with member's residence in full, which should if possible be before 10 A.M., who shall attend to the same without delay." Such is the actual phraseology of the rules. The medical officer who received for the year 1894 the sum of £381 11*s.* 11*d.* very obligingly went through his books, and ascertained that he had given 4650 consultations to the members of the society in his surgery, and had made 1958 visits. Dividing this total of 6608 consultations by the sum received, the fees paid amounted to 1*s.* 1½*d.* per consultation. From this must be deducted the cost of the medicines, etc., which in this case was estimated at about half the total sum. Now it should be observed that since this society was first founded the wages earned at the docks have increased to an extent of about 10*s.* a week, but it has never occurred to the workmen that they might have increased their medical fees in due proportion to the augmentation of wages they had secured. Nor has any attempt been made by the Dockyard Medical Benefit Society to establish a wage limit. On the contrary, the President of the Liberal Union, who is a member of the board of guardians, is employed in the dockyard and also keeps a newspaper shop, is a member of the Dockyard Medical Benefit Society. One of the medical officers of this society is also a member of the board of guardians and has to attend his colleague on the board for the munificent remuneration of one halfpenny per week.

The example of the Dockyard Society is unfortunately spreading. The Rechabites having decided to admit infants and juveniles, the six or seven medical men in their service recently sent in a joint protestation, stating that for juveniles the contributions should be augmented. Children, they urged, required more attendance and medicine than adults; that the proposed fee of 2*s.* 2*d.* per annum for children was insufficient and should be the same as for adults—namely, 4*s.* per annum. This request has been rejected, and the reason given for this refusal is that the average rate of sickness among members is much less than in similar societies which do not adopt the temperance pledge. I have not yet been able to obtain any statistics that prove this contention. On the other hand, I have met a medical officer in the service of the Rechabites who, on the contrary, considered them an unhealthy set of people. The fact that a man is a total abstainer sometimes means that his digestive faculties are so impaired that he could not drink even if he wished to drink. Others very wisely become total abstainers because their parents were excessive drinkers and they fear they may inherit the alcoholic taint. In a word, many persons are total abstainers precisely because their health is not all that could be desired. The Rechabites further give as a reason for refusing to grant the request of their medical officers that their members pass a medical examination before being admitted, and that this is not done by all societies; and, moreover, that "in one society at least in Portsmouth the whole of the family, adults as well as children, are received at the same rate—viz., ½*d.* per member per week." By this, of course, they mean the Dockyard Medical Benefit Society. Thus we have in this reply, written by the secretary of the Rechabites, documentary evidence of the evil wrought by the example of the Dockyard Society. They go on to say that cases of infectious disease are treated at the infectious hospital and accidents at the Landport Hospital, so that their medical officers have not to attend such cases. Having thus refused to make any extra allowance for juvenile branches the secretary of the Rechabites seeks to increase the duties of the medical officers, and this in a very objectionable manner. He adds that the Rechabites "would also respectfully ask their surgeons to request to see members' contribution cards when application is made for medical aid, as they would thereby protect themselves from imposition, and also assist the superintendent in reducing the amount of arrears, which would, of course, put the Tents in a better financial position." Thus the medical men are to act as detectives working on behalf of the collectors of subscriptions, a very unpleasant task which certainly forms no part of medical duties. In the face of this most unsatisfactory reply the medical officers in the service of the Rechabites seem disposed to resign their situations. In that case, the medical profession throughout Great Britain should be warned and made to understand that

it would be a dishonourable act to accept any offer that may be made by the Rechabites of Portsmouth.

It is not only the Rechabites who are seeking to admit juveniles, but a very large lodge of the Oddfellows at Portsmouth have now notified their intention to admit infants, and this may also cause the resignation of the medical officers concerned. The medical officer who has received this notification has a very large club practice. He calculates that he is occupied three hours per day in his own surgery receiving club patients, and some of them are sufficiently well off to ride to his surgery on their bicycles. Then he has to see about ten club patients per day in their own homes. Altogether his club patients take up about five hours per day, and for this he receives just upon £1 per day. The dispenser he has to keep and the medicine he has to supply cost him about a third of this sum. Five hours per day at £1 equals 4*s.* per hour, and, deducting the cost of medicine, &c., we get a net profit of about 2*s.* 8*d.* per hour of professional work. The fee for each consultation, including medicine, amounts in this case to from 4*d.* to 5*d.* Nevertheless, the members of these clubs imagine that their medical officers are very well paid and rapidly accumulate fortunes. This is especially the case when the medical man keeps a carriage. They do not realise that a carriage costs 10*s.* a day, and that even at this price it is often about the cheapest way of getting over the twenty or more miles that have to be travelled in the course of the day so as to see all his patients. Then there is the terrible fact that the more thoroughly and conscientiously the medical man does his work the greater the number of patients who flock to his surgery; but, as the number of patients does not increase the amount of the fees, so there is every temptation to neglect the patients and not encourage their visits. It is, therefore, not merely the question of cheapness that members of benefit societies should consider, but rather the kind of attendance they receive. This, again, depends on the individual medical officer, who may or who may not do his very best without any thought of the remuneration he is likely to obtain. The one advantage of doing the work well is that the patients, if thoroughly satisfied, will very frequently continue to consult the club medical officer even if he resigns his position on the club, and then claims the usual fees. There is at least one medical man at Portsmouth who has found it to be no loss to resign his position as medical officer of the dockyard society. Many of his club patients continue to consult him. They are fewer in number, but as they pay proper fees his income does not suffer and he has much more leisure. Two or three families are often preferable to an entire lodge of a club. Also the presence of some ten to twenty club patients waiting to see their medical attendant has a deterrent effect on private practice. Ordinary patients do not like to be confused with club patients, and it is not always easy to sort these and place them in different waiting-rooms. Errors that give offence are often committed. Thus club practice has numerous inconveniences; nevertheless, there are many medical men who lack the courage to give up a small certainty and to incur some risk, even if it be but a slight risk, to secure a general all-round improvement for themselves and the whole of the profession.

Portsmouth, Sept. 20th.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

The Case of Poisoning in Gorton-park.

YOUR correspondent, Dr. MacArthur, seems to think my notice of the case of supposed poisoning by henbane "not quite satisfactory." Any apparent scepticism was not as to the symptoms, for they were not described in the report, but, first, as to the occurrence of henbane in the park; and, secondly, as to the child being attracted by and eating sufficient of such a suspicious-looking plant to cause her death under the impression that it was "green sauce," which she said she had eaten. Dr. MacArthur kindly offers to show me the locality, and says that he can satisfy me that there is a poisonous flora, but he does not say that henbane grows there.

Bequests by the late Mr. D. S. Jackson.

This gentleman, formerly in business here, has left public bequests amounting to £38,000, to take effect after the death of his widow. Of this sum no less than £24,000 go to the benefit of animals. The Manchester Branch of the Royal Society for the Prevention of Cruelty to Animals gets £10,000; the Dublin Society £2000; the Manchester and Salford Cattle Trough Association and the similar London Society get £2000 each; the Battersea Home for Dogs, the Home of Rest for Horses, and the Anti-Vivisection Society, each £2000; while the Homes for Lost Dogs in Liverpool and Manchester get £1000 each. In addition, he left the following sums for the benefit of suffering humanity: £5000 to the Mauldeth Hospital for Incurables, and £2000 each to the Royal National Lifeboat Institution, the Boys' and Girls' Refuges, Henshaw's Blind Asylum, and the National Society for the Prevention of Cruelty to Children. Bequests for the maintenance of pet cats have been made by persons reputed to be eccentric; but Mr. Jackson was a clear-headed, sensible man, who, though always interested in the kind treatment and welfare of animals, was perfectly free from any manifestations of eccentricity, if I except, perhaps, his attitude on the question of vivisection, and this may be put down to want of knowledge. The idea that animals have any claim on our kindness, or that we have any duties towards them, is somewhat new, but is no doubt growing in this country, while it can scarcely be said to have entered the mind or touched the conscience in any other. It will readily be granted, moreover, that the humane treatment of domestic animals is abundantly repaid in the increased efficiency of their service.

Accidental Poisoning.

An excellent article appeared the other week in the *Manchester Guardian* on this subject. It was occasioned by the lamentable accident in Birmingham, where two people were poisoned by strychnine having been given for phenacetine, and draws attention to the "absurd" inadequacy of the Pharmacy Acts. The Registrar-General's returns show that in 1893 587 deaths occurred from the accidental swallowing of poisons and the accidental inhalation of poisonous fumes, of which over 500 belonged to the former category. In 1892 there were 820 cases of fatal poisoning, of which 514 were accidental, and of these 104, or 20·2 per cent., were caused by opium in some of its forms. In 1893 the deaths from this one cause were 93. Chloroform deaths average about 50 and those from carbolic acid about 24, but in this district they have been of late alarmingly frequent, while arsenic is credited with about 15. A long series of cases might be given showing the carelessness with which people trent poisons. "A thirsty policeman drank carbolic acid instead of beer, and about twenty other people—some drunk and some sober—came in this way to an untimely end within the space of eighteen months." Carbolic lotion has often been drunk instead of medicine, and so on almost indefinitely. At one time Burnett's disinfecting fluid, a solution of chloride of zinc, was not infrequently taken in mistake for fluid magnesia; and a lady is living not far from where this is written whose life was for a long time in the greatest peril, both at the time of the accident and subsequently from œsophageal stricture, produced by this cause. The article considers, and very properly, that greater difficulties should be experienced in the purchase of poisons and says that "restrictions should be placed on the sale of carbolic acid, for this is one of the poisons that people toy with most." It would be well if carbolic acid were prescribed less freely now that its place may generally be taken by disinfectants equally efficient and non-poisonous. Weed-killers and vermin-killers provide means for the easy distribution of arsenic and strychnine; and by calling at sundry druggists' shops and purchasing it in small quantities it would not be very difficult to obtain a quart of laudanum. If it is desirable to lessen the facilities for obtaining drink and so reduce the temptation to take it, the same reasoning may be used with equal, if not with greater, force in the case of poisons.

Corporation Show-rooms for Gas Stoves.

Yesterday a commodious building in Deansgate was opened by the Lord Mayor, which has been designed to give intending purchasers the opportunity of inspecting heating and cooking stoves of all makers, so as to encourage the use of gas, and thereby diminish the nuisance of coal smoke. The chairman of the gas committee said they wished to develop to the utmost the resources of the gasworks, in which about £4,000,000 of the ratepayers' money were invested. He wished to reduce the price of gas to 2*s.* per 1000 feet, and to increase the quantity supplied by the penny-in-the-slot meters

from 25 ft. to 35 ft. Reduction in the price is necessary if gas is to be largely used for cooking, heating, and for gas engines.

Sept. 24th.

NORTHERN COUNTIES NOTES.

(FROM OUR OWN CORRESPONDENT.)

The Jarrow Cruelty Case.

AT the instance of the National Society for Prevention of Cruelty to Children Leonard George Peters, a registered medical practitioner, was, by the Jarrow magistrates, on Sept. 19th, convicted of gross cruelty to his children, aged respectively ten and five years and one year, and sentenced to three months' imprisonment in Durham gaol. The evidence showed that drink was at the bottom of the case, the wife and children both stating that Peters was kind to them when he was sober, but that he was very often drunk, and then behaved very cruelly to them all.

Newcastle-on-Tyne, Sept. 24th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Scottish Plumbers' Congress.

THE sixth annual Congress in connexion with the National Registration of Plumbers was held in Dumfries last week. The delegates were received on the opening day in the town hall by the Provost. Amongst those present were Sir Stuart Knill (Master of the Worshipful Company of Plumbers), Sir James Crichton Browne, M.D., and Sir Mark J. Stewart, M.P., who took an active part in the proceedings and participated in a discussion bearing upon the plumbing work in houses. A resolution was submitted and agreed to, urging that in the employment of plumbers preference should be given to registered men. Another resolution which was adopted declared that plumbers, from their practical knowledge and training, were specially fitted for employment as sanitary inspectors. In connexion with the Congress an exhibition of plumber's work was held in the Drill-hall. Sir James Crichton Browne formally opened the exhibition, and in his opening address dwelt upon the intimate relationship of plumbing to the health of the community. In the registration movement he recognised an effort to revive the old feeling of trade credit which was fostered in the Middle Ages by the trade guilds, and he wished them success in their effort to unite old-fashioned morality with modern dexterity. Sir Stuart Knill also addressed the meeting and expressed the hope that we would see in this country a revival of that artistic plumbing of which specimens were to be seen particularly in Germany and Belgium.

The Public Health of Edinburgh.

During the month of August the death-rate in Edinburgh was rather above the average for that month. The reported cases of infectious disease included 197 cases of scarlet fever, 35 of typhoid fever, 21 of measles, and 14 of diphtheria. At the end of the month there were 261 cases in the City Hospital. It may be mentioned in this connexion that there appears to be a considerable number of cases of diarrhœa in the city. Some of them are dysenteric in character, and in some the diarrhœa is accompanied by vomiting. So far as can be ascertained the cases have been readily subdued by treatment.

Prosecutions in Edinburgh under the Pharmacy Act.

A number of prosecutions under the Pharmacy Act were heard last week in Edinburgh in the Sheriff Court. The prosecutions were at the instance of the Pharmaceutical Society of Scotland. The greater number were instituted against assistants in druggists' shops for selling poisons, they not being duly registered druggists. Fines of £5 or less were imposed. Complaints were also made against assistants of two of the leading surgical instrument makers for selling tablets containing bichloride of mercury. In these latter the accused pleaded guilty, but it was explained that the tablets were sold to surgeons for cleaning their instruments, and that it was thought that, as the tablets were a proprietary article, they did not come under the Pharmacy Act. Under the circumstances a fine of £1 was imposed, with £1 1*s.* for expenses. Complaints were also made against two dealers in photographic appliances for selling poisons, they not being qualified druggists; in these cases judgment has been deferred. In some of these prosecutions, as in the cases of the surgical instrument makers and the dealers in photographic appliances, the general feeling will certainly be that something approaching a wrong has been done to those prosecuted. It may be an infringement of the letter of an Act of Parliament for a surgical instrument maker to provide his customers with tablets for rendering his instruments aseptic, but most people will not be prepared to believe that the Act had any such object in view when it was drawn. The course taken by the Pharmaceutical Society in the matter seems to require an explanation, for meanwhile, although technically justified, it will be felt that their action has been ungenerous and unwise. In a case tried in Glasgow last week laudanum had been sold to a boy ten years of age whose mother subsequently poisoned herself, and the principal of the shop in which the sale took place admitted that it was a common practice to sell laudanum to young persons.

The Cost of Small-pox in Edinburgh.

At the meeting of the Edinburgh town council to-day the treasurer's committee recommended an assessment of 2*s.* 2*d.* per pound. The treasurer, in moving the adoption of this recommendation, pointed out that the increase of 1*d.* per pound over last year was brought about, not on account of the ordinary expenditure, but was entirely due to the small-pox epidemic of last year, which caused a deficit of £11,622.

The Proposed New City Hospital for Edinburgh.

At the meeting of the Edinburgh town council to-day the proposal of the health committee to purchase Colinton Mavis Farm for the price of £20,500 as a suitable site for the proposed new city hospital was submitted by the chairman of the committee and seconded by Sir James Russell. The report and the recommendation were agreed to. Attention was drawn to the presence of epidemic disease in some districts of the city, and one of the members thought that sufficient was not being done to prevent infectious disease from spreading. He thought that something should be done to bring them more into touch with the county authorities than was the case at present.

Poisoning by Benzine.

An unusual case of poisoning is reported from Falkirk. A woman who had become suddenly unconscious was found on examination to have swallowed a quantity of benzine. It is presumed that she swallowed this, mistaking it for a mixture she was in the habit of taking for a sore-throat.

Scottish Prison Statistics.

In their annual statement for 1894 the Prison Commissioners report that the number of prisoners committed to prison for that year was 52,658 persons. The increase, which makes the total greater than in any previous year, is largely due to an augmentation in the number of persons committed for drunkenness, and this is attributed to the prosperous state of the country and to the activity of the police. As bearing on this point it is noted that during the three months of severe weather in the early part of the present year the prison population fell to the lowest point on record. The returns also show an increase in the cases of sickness, which numbered 1221, and included 45 cases of influenza and 40 cases of delirium tremens. Twenty-three persons were released on medical grounds, and there were 51 cases of insanity. Of the latter, 40 were discovered to be insane when committed. Concerning the department for criminal lunatics at Perth the Commissioners state that Dr. McNaughtan "continues to conduct it with our full approbation," and quote the Visiting Commissioners in Lunacy to the effect that "the state of the work, the condition of the inmates, and the management of the establishment continue to be very satisfactory."

New Fever Hospital for Stirlingshire.

The county council have approved of plans for the erection of a new hospital for infectious diseases near the village of Camelon. The estimated cost is £6450.

The New Asylum at Hawkhead.

The congested condition of their present asylum at Merryflatts has compelled the Govan authorities to push forward the completion of a portion of their new building, though the original plans are far from being realised. The

completed portion has been sanctioned for use as a district asylum, and a number of patients have been transferred to it under the care of Mr. Watson.

Scottish Prison Medical Officers' Association.

An association of the medical officers of the Scottish Prison service has recently been formed. The first meeting took place in Glasgow last week.

A Strike of Butchers.

A rather curious struggle has recently been in progress at Motherwell. The butchers of the district decided to boycott the public slaughterhouse in order to compel the authorities to accede to their demand that the whole of a carcase in which tuberculosis is localised should not be destroyed, but only the diseased portion, the remainder being passed as fit for human food. The Commissioners, however, have stuck to their guns and the butchers are now giving up the struggle.

The Falls of Foyers.

The scheme of the British Aluminium Company, which involves the practical destruction of this magnificent waterfall, has excited considerable indignation. An attempt has been made to gain the help of the Government, but it seems that the Secretary for Scotland has no power to interfere. Mr. Ruskin has associated himself with the opposition which is now being organised by the National Trust for Places of Historic Interest or Natural Beauty, under the Presidency of the Duke of Westminster. Any of our English medical friends who desire to do so may join in the protest by writing to the Secretary to the National Trust, 1, Great College-street, Westminster, S.W.

Aberdeen University: the Inauguration of the Mitchell Tower and Students' Union.

The University Court at a meeting last week agreed, in deference to the wishes of Mr. C. B. Mitchell and Mrs. Mitchell, to proceed with the celebrations at the date originally fixed. They will therefore take place on Thursday and Friday, Oct. 24th and 25th, but the proceedings will be somewhat curtailed from the original plan. The order of events will be somewhat as follows. On Thursday the Mitchell Tower and Students' Union will be formally opened. The clock in the tower will strike and a response will be given by the city bells. The custody of the Union will be handed over to the President of the Students' Representative Council, and an address will probably be presented by the students to Mr. C. B. Mitchell. In the evening there will be a grand conversazione in the new buildings. On the Friday the new Graduates' Hall will be opened in the forenoon, and the honorary doctorates will be conferred. In the afternoon the Marquis of Huntly will deliver his rectorial address in the new hall, while in the evening the Lord Rector will be entertained to dinner by the University authorities. The proceedings will be wound up with a students' torchlight procession.

The Health of Aberdeen.

The zymotic diseases notified for last week were: scarlet fever, 24; whooping-cough, 26; erysipelas, 7—making a total of 57, which number is two cases fewer than last week, but there are noticeable a considerable increase of scarlet fever and a decrease of whooping-cough.

Sept. 24th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The New Dublin Hospital for Infectious Disease.

AT a recent meeting of the guardians of the North Dublin Union a letter was read from the Local Government Board stating that they adhered to an opinion, expressed as far back as 1892, that it was desirable that the guardians of the Dublin unions should have suitably situated hospitals for the reception and treatment of dangerous infectious diseases under their own control and management. Mr. Stafford, the Local Government Board inspector, agreed that it would be best to have a single infectious disease hospital established in connexion with the two unions, but that additional Parliamentary powers would be required for that purpose. He also stated that Sir Charles Cameron was actually preparing a scheme for a joint hospital, to be under the management of a board which would probably consist of the guardians of the North and South Dublin unions, the corporation, and other sanitary authorities. As the scheme of the chief medical officer of health has been almost completed, and as all the sanitary authorities will soon be asked to meet and discuss the matter, the further consideration of the subject was postponed.

Irish Workhouse Reform.

The circular of the Local Government Board addressed to the boards of guardians of Ireland has already had the effect of strengthening the position of some of the medical officers in country districts and of inducing them to direct public attention to necessary reforms. At a recent meeting of the Castlerea board of guardians an order for provisional relief given by the medical officer to a family stricken down by fever of a malignant type was disallowed, the guardians refusing to pay the bill for the relief. Mr. Coen, L.R.C.S. Irel., J.P., &c., stated that he believed himself justified in giving the order as the family was destitute and stimulants were urgently required for the treatment of the disease. He is reported to have said, moreover, that "Mary Leonard aged thirteen years had, since the board's order, died for the want of stimulants." It appeared that the medical officer had notified the relieving official by message and telegram, and then had issued the order himself. As Mr. Coen remarked, "doctors should be allowed a certain amount of liberty in such cases, especially where the people are destitute and in urgent need of stimulant treatment." It is only right to say that ultimately the guardians agreed to pay the amount of the bill, while maintaining their opinion that it was unlawful for the medical officer to have given the order.

Westmorland Hospital, Dublin.

The Lords Justices have appointed Sir Charles Cameron to be a governor of the Westmorland Lock Hospital, in the room of Sir George Porter, deceased.

Board of Superintendence of Dublin Hospitals.

The Lords Justices have appointed Dr. Henry Fitzgibbon to be a member of the Board of Superintendence of the Dublin hospitals, in the room of Sir George Porter, deceased.

Compulsory Retirement of Professors appointed by the Crown.

Some time ago the question of compelling professors and presidents of the Queen's Colleges in Ireland to retire at a certain age was raised by the Order in Council of Aug. 15th, 1890, which placed them exactly in the position of Civil servants, who are compulsorily retired at the age of sixty-five years. Legal authorities differed as to whether this order could be made to apply to professors, and President Moffet of Galway, after having been compulsorily retired, was, on the advice of the English Lord Chancellor (Herschell), reinstated. After this the Treasury appointed a Committee (Lord Playfair, Lord Welby, and Sir Matthew White Ridley) to consider the advisability of fixing an age for the compulsory retirement of professors serving under the Crown. This committee, who took evidence during the past summer, have just reported that, in their opinion, the commission of 1880, upon the report of which to some extent the Order in Council of 1890 was based, did not intend that the limitations of age should apply to presidents and professors of colleges, who are appointed and serve under different conditions from those which prevail in the Civil Service. After pointing out that these presidents and professors are appointed at a maturer age, and have, by the nature of their employment at seats of learning less tendency than Civil servants to become inefficient at the age of sixty-five, and that the Queen's Colleges in Ireland are only to a small extent dependent upon votes in Parliament, being mainly supported out of the Consolidated Fund, and that, in consequence of this peculiarity, they are in more intimate connexion with the executive Government, with which the presidents are in frequent communication as to the working of the college and the efficiency of the professors, who are appointed by the Crown and by whom they can also be dismissed, and that the statutes which govern the colleges also emanate from the Crown and are not (as in other colleges) the product of academic autonomy, the committee are of opinion, taking all these circumstances into consideration, that there should be fixed rules as to superannuation of presidents and professors, and that they should be made by college statutes and not by an Order in Council. The committee recommend that when a professor reaches sixty-five years of age the president of the college should be bound to report to the Government the condition

and efficiency of the teaching. If these are and continue to be satisfactory the professor need not be superannuated till he is seventy, but at this age his retirement should be absolute. As to presidents, they advise the age of seventy as the period of retirement, but in case the visitors of the college make a formal report that the college would suffer by the loss of the experience which the president has acquired the committee suggest that the Treasury, and not the Irish Office, should have power to keep him as president for a certain number of years not exceeding five, so that at the age of seventy-five the retirement of a president should be absolute. The committee believe, as the professors are not appointed till middle life, that the addition of seven years to their period of service in calculating the amount of their superannuation obviously tends to secure eminent specialists as candidates for office. The power of voluntary retirement at the age of sixty has also much to commend it in this sense. Such is the gist of the report presented to the Treasury by their committee.

New Infirmary for County Tyrone.

At a meeting held in Omagh on Sept. 20th, the Duke of Abercorn presiding, it was decided that a committee should be appointed to carry out the necessary conveyances for acquiring a site for the new Infirmary on a gentle eminence about a quarter of a mile from Omagh, recommended by the site sub-committee. It seems that up to the present the total sum subscribed is £3000, and it is expected that another £2000 will be raised by the sale of the old Infirmary. Plans for the erection of the new building were then considered and approved of, with the exception of some trivial alterations. The question of the formation of a ladies committee, as a large sum of money will still be needed, was left to the Duchess of Abercorn. The proposed situation of the new Infirmary is an admirable one for a hospital, being on the banks of the Camowen river in the centre of a beautiful and most healthy district.

The Consumption of Alcoholic Liquors in Irish Workhouses.

The Irish Association for the Prevention of Intemperance has issued a comparative statement of the expenditure in intoxicating drink in Irish workhouses during the year ending Dec. 31st, 1893. The expenditure in many local unions is not great. Belfast heads the list with an outlay of £598, North Dublin comes next with £497, then Limerick with £413, Cork £228, and Rathdown £254.

Outbreak of Typhus Fever at Ardboe.

Mr. Robert Burgess, dispensary officer for Coagh, has received a special vote of thanks from the Cookstown guardians for the energetic steps taken by him to check a serious outbreak of typhus fever in Ardboe, on the shores of Lough Neagh, county Tyrone.

The Duties of Medical Officers, Masters, and Matrons in Irish Workhouses.

At the present time the subject of the management of Irish workhouses and their attached infirmaries is attracting a good deal of attention in various parts of Ireland. As an instance of this, I may mention that at the last meeting of the Ballymena guardians the following queries were put before the board by Dr. W. R. Davison, medical officer of the workhouse: "Is it any part of the master's duty or the duty of the matron to transfer a patient from the infirmary to the asylum without a proper certificate from the medical man in charge? I take it that the wards set apart for the insane patients from Belfast are to all intents and purposes a part of the Belfast Asylum for the time being. Is it any part of the master's duty to complete a medical certificate in the case of an insane patient? Is it any part of the master's duty, or the duty of the matron, to say when a patient is fit to be removed from the infirmary, or how long a patient should be retained in, or when a patient should be treated in the infirmary?" Dr. Davison, who was present, said he made no charge at all against the master or matron, but there were certain duties belonging to each of them, and he wanted the matter decided. After discussion, it was decided to enter the word "No" at the end of each query in the medical officer's report, and that in the opinion of the guardians the medical man had preferred no charge.

The Battle of the Clubs at Cork.

It will be in the recollection of the readers of THE LANCET that some time ago all the Cork druggists, with one exception, refused to continue to supply the clubs at contract prices. This was what might have been expected, as for years past the druggists have felt aggrieved at being called on to sell their drugs to rich club patients at the reduced prices charged to the humbler classes. In the exigency of the situation the clubs were glad to find that even one druggist was willing to help them out of their difficulty, and accordingly all their prescriptions went to his establishment. But somehow the clubs and their druggist do not appear to be on harmonious terms, and an official of the clubs has written a letter to the other druggists asking them in peremptory terms whether they will be prepared to enter into contracts with the clubs as heretofore, and stating that if they should contumaciously refuse, the clubs will start an opposition druggist's shop in Cork. The druggists, I am sure, will treat this threat with the contempt it deserves. If the clubs seriously contemplate doing what they say, which I very much doubt, they might endeavour to do one of two things, either to bring in an outside druggist or to raise capital amongst themselves. With regard to the former I cannot see how any respectable firm would be so foolhardy as to open a branch in Cork; with the thorough conviction that by doing so they would for ever alienate the whole medical profession of Cork; and with regard to supplying capital, all I can say is if I wished to invest money I would prefer putting it into a mine in South Africa about which I knew absolutely nothing. The recalcitrant clubs are being cornered more and more every day, and the angry tone of their letter to the druggists is a fair indication that they feel they are playing a losing game. It has been the fixed policy of the profession not to enter into a newspaper correspondence with the club members, but I have reason to believe that the letter of the medical delegates, a copy of which you published last week, has produced a very marked effect on the general public. The charges of boycotting brought against the Cork hospitals by the President of the United Trades' Association have dissipated into thin air. A very forcible letter on the subject addressed to the Mayor by Mr. D. J. Forde, trustee and treasurer of the North Infirmary, has been published in the local papers. The following extract from Mr. Forde's letter is worth reproducing as illustrating the sentiments of the thoughtful public with regard to the President's action:—"In conclusion, I may say the trustees naturally feel much annoyed at the way this matter was brought forward and commented on, while a note of enquiry from the association or others, such as you have sent, would have at once elicited an answer from the trustees; but to be held up to public odium first, and the facts enquired into afterwards, seems discourteous and unreasonable."

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Remains of the Old Faculty of Medicine.

M. CORLIEU recently read a paper on the above subject before his colleagues of the Academy of Medicine. He tells us that up to the year 1409 the Faculty buildings consisted only of a miserable tenement situated in the Rue des Rats. This street, the possession of which was, judging by its name, disputed by the students and armies of rodents, still exists near the Place Maubert as the Rue de l'Hôtel Colbert. The members of the Faculty then held their meetings either in the space surrounding the principal baptismal font of Notre-Dame, or they paid so much rent for accommodation in the Convent of the Mathurins. In 1469 the Faculty bought a house in the Rue de la Bucherie, and thirty years later constructed a chapel close by. In 1567 a botanical garden was added. These premises included all the ground upon which now stand the houses numbered 13 and 15, Rue de la Bucherie at the angle of the Rue des Rats, the façade measuring thirty metres. No. 13 is now devoted to uses the very reverse of moral, while No. 15 is a public washhouse. In 1617 there was built in the garden an amphitheatre called "Riolan's Amphitheatre," because in its construction were employed the designs of the son of Riolan, the celebrated French anatomist, whose name, by the way, is still associated with the muscles inserted into the styloid process. Frequently recurring inundations, caused by overflow from the neighbouring Seine, having damaged the buildings, 20,000 livres, left for the purpose by Michel le Masle, were in 1678 devoted to the reconstruction of the entrance gate. In 1745 the renowned anatomist Winslow

(who, born in Denmark in 1669, died at Paris in 1760) opened the new amphitheatre, built on the site of the old one. This amphitheatre, called the "Amphithéâtre de Winslow," still stands. It cost 52,016 livres 10 sous. Nowadays the remains of these ancient buildings are scarcely recognisable, being put, as they are, to less noble uses. The benches and professors' tribunes are now replaced by laundry utensils, the first floor has been converted into a cheap lodging-house, and the amphitheatre seems to frown sadly at this degradation. M. Corlieu terminates his most interesting communication by asking: "Par suite de quel contrat tacite Esculape a-t-il cédé une partie de son temple à Vénus?"

Treatment of Pneumonia by large doses of Digitalin.

M. Franc (Congrès Français de Médecine Interne held at Bordeaux) strongly recommends for the treatment of pneumonia the following plan of medication: the first day the administration of one or two milligrammes of crystallised digitalin, the solution used being Petit-Mialbe's 1 in 1000 solution; the second day one milligramme of the alkaloid is given, and if necessary the same dose is exhibited daily for a few more days. On the second or third day considerable improvement is stated to be observable, the disease appearing in some instances to be aborted. The happy effects of the digitalin are specially noticeable in infectious, adynamic types of pneumonia, where a manifest change for the better in the general condition is plainly observed on the second or third day in spite of the persistence of physical signs. It is claimed for the digitalin treatment that improvement is closely followed by rapid convalescence.

Sept. 24th.

ROME.

(FROM OUR OWN CORRESPONDENT.)

The Celebration of the 20th.

As behoves a "carnival people"—the name given to them by a distinguished compatriot of their own—the Italians were quite equal to the festive commemoration of the "silver wedding" of Rome with the new kingdom. The preparations had been well matured, and the result from the holiday-making point of view was a brilliant success. Conspicuous among the events of the day was the speech of Signor Crispi at the unveiling of the monument to Garibaldi, a fine rhetorical effort and in all respects worthy of the statesman in whose hands the destinies of Italy are now placed. Apart from the political aspects of the occasion—with which I am not concerned—there were not a few incidents specially gratifying to the profession, and, indeed, to all who have at heart the well-being, moral and material, of the youngest of the Great Powers. Professor Todaro, who fills with such acceptance the chair of Anatomy in our University, was quite within the mark when, at the opening of the Concorso Ginnastico (athletic competition), he congratulated the Italian youth on the progress made in physical education—in all, to put it briefly, that is implied by the "mens sana in corpore sano." Then, again, the proceedings of the Congresso Nazionale delle Pubbliche Assistenze were worthy of its president, the great sanitary engineer of Spezia, Signor Carlo Verde; of its vice-president, his Excellency Dr. Guido Baccelli; and of the other office-bearers and participants: Dr. Panizza, assessor to the municipality in the Department of Public Hygiene; the Hon. Signor Silvestrelli, whose work in hospital rehabilitation is well known; Professor Aurelio Costanzo, and Major Lombardo, M.D. Certainly the sanitary regeneration of Italy is a question of prime importance for her present and still more for her future, and it is reassuring to find, among the duties she feels imposed on her in celebrating the twenty-fifth anniversary of the consummation of her unity, that that of ministering to the health conditions of her people is not relegated to an inferior post. *Au reste*, the day passed off without untoward incidents of any kind—none of the collisions and violent outbreaks which on similar occasions have filled the hospitals with cases of "cutting and wounding," or worse, having been reported at the "Consolazione" or "San Giacomo."

The Italian Society of Internal Medicine.

The Società Italiana di Medicina Interna will hold its annual meeting this year in Rome from the 14th to the 16th of October. The programme includes two full-dress debates, which, according to the secretary's circular now before me, will turn (1) on Sero-therapy and (2) on the Falling-off of Nutrition in the Human Economy. The first will be introduced by Dr. Pio Foà, Professor of Pathological Anatomy and Bacteriology in the University of Turin, and Dr. E. Maragliano, Professor of Clinical Medicine in the University of Genoa. In the second Dr. Enrico de Renzi, Professor of Clinical Medicine in the Neapolitan School, will lead off the debate. The other items of the agenda paper have much to attract the profession, and those representatives of British schools who may be in Rome about the middle of next month might do worse than look in on this annual field-day of their Italian brethren. All information as to reduction in railway fares and other facilities open to participants at the Congress may be had from the secretary, Professor Lucatello, 40, Via Galata, Genoa.

Baccelli and Virchow.

As I close this letter I am informed, from the Ministry of Public Instruction, that his Excellency Dr. Baccelli has received numerous telegrams from educational institutions and medical schools, Italian and European, participating in the commemoration of the 20th and auguring increased prosperity to the interests, moral and material, for which the absorption of Rome into the Italian kingdom constituted a new departure. The following, of which I give the *ipsissima verba*, comes from a source peculiarly welcome to young Italy in general and young medical Italy in particular:—"Caldissimi auguri di felicità e saluti.—VIRCHOW."

Sept. 21st.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

The Reform of Medical Study.

THE various boards are just now deliberating on the reform of medical study. The present system is due to the late Professor Langer, who was medical adviser to the Ministry for the Home Department. According to these regulations a five years' course is necessary for obtaining a diploma, and during this time the student has to attend classes in anatomy and physiology (one half-year each), medicine and surgery (four half-years), obstetrics and ophthalmology (one half-year). With respect to the examinations, those in zoology, mineralogy, and botany may be passed at any time. After the close of the second year the student is admitted to the so-called first Rigorosum, consisting of practical examinations in anatomy and physiology, and theoretical examinations in anatomy, physiology, physics, and chemistry. The second and third examinations must not be passed before the close of the fifth year, after which time the student, on producing evidence of class attendance, is admitted to the final examinations. The second Rigorosum consists of a practical and a theoretical part, the former comprising the subjects of pathological anatomy and medicine, and the latter those of pathological anatomy, medicine, materia medica, and experimental pathology; there are also included two additional examiners in diseases of children and laryngology, who alternate. The third Rigorosum consists of practical and theoretical examinations in obstetrics, ophthalmology, and surgery, and a theoretical examination in forensic medicine. The lecturers on otology and syphilis alternate as additional examiners. After having passed these examinations, the Faculty grants to the student the degree of M.D. These regulations are obviously antiquated, their principal defect being that no attention is directed to matters of such great importance as public health and bacteriology, examinations in these subjects being open only to men who have already graduated and aspire to the position of a public official. It is now proposed that the examinations in zoology, mineralogy, and botany should be discontinued, but that a thorough knowledge of practical chemistry should be required, an innovation upon which much stress is laid by the boards, for chemistry daily produces new remedies (as many as 282 in the past year), and the practitioner ought to have an idea of their composition. The principal point, however, has reference to clinical instruction, because for a number of years complaints have been made of the imperfect practical knowledge of the students, an evil which is due to the spirit of centralisation prevalent in this country. According to this system, clinical teaching in medicine is limited to three

clinics, and in surgery to two clinics. No wonder that the old amphitheatres of the General Hospital are overcrowded, and that a space hardly sufficient for 250 persons is occupied by 600 or 700. The boards, therefore, advocate that clinical instruction should be decentralised, that the chief physicians, extraordinary professors, and *docenten* should be allowed to read lectures, and that the students should have more frequent opportunities of seeing clinical cases. It is also recommended that slight operations should be entrusted to surgical students, a system which has already been adopted in the clinic of Professor Wölfler in Prague. An examination in bacteriology ought also to be combined with that in pathological anatomy, and the study of syphilis should be obligatory.

Medical Advertising.

In spite of the endeavours of the Medical Chamber the tribe of advertising practitioners still flourishes, and the newspapers are filled with the announcements of specialists who promise to credulous sufferers "a radical cure for all secret diseases, even the most inveterate, and restoration of lost or impaired sexual vigour." Some of these persons pay to newspapers £100 annually for the daily insertion of their advertisements, but their number has already decreased, and some of them have left Vienna for Budapest, where this abuse has not yet attracted much notice. Against those who continue such dishonourable practices the Medical Chamber will take the most energetic measures, and will specially direct its attention to the undue influence of the lay press in medical matters. This mischief has already advanced to such a degree in Vienna that the lay press has the power of making medical celebrities, and that systematically. Many a young member of the profession has become a person of note in consequence of the exertions of journalists with whom he is acquainted, and even leaders of our school lend themselves to interviews, the substance of which is printed next day for the pretended purpose of popularising medical science. Every day the newspapers mention the return of this or that practitioner after taking a holiday—a notice which is paid for like any other advertisement. It is singular that the Medical Chamber does not restrain a medical man from making such a personal announcement, provided that it is not repeated more than three times; it will act in the interest of the profession by abolishing this concession.

The School of Medicine, University of Vienna.

According to the prospectus for the coming winter session, which has just been issued, 260 classes and courses will be held by 29 ordinary professors, 38 extraordinary professors, and 85 *privat-docenten* and assistants. The details are shown in the following table:—

Subject.	Classes.	Ordinary professors.	Extraordinary professors.	Privat-docenten and assistants.
History of Medicine	2	1	—	—
Anatomy	10	2	2	1
Physiology	12	2	2	1
Pathology	17	2	4	4
Pharmacology	6	1	—	2
Medicine...	62	4	7	28
Surgery	49	2	9	14
Otology	11	2	1	3
Ophthalmology	23	2	2	6
Midwifery	32	4	5	15
Syphilis	18	2	2	9
Mental Diseases	8	2	2	2
Chemistry	9	3	2	1
Veterinary science	1	—	—	1
Totals...	260	29	38	85

Last summer session the school was attended by 2213 students, among whom there were 1480 ordinary, 351 extraordinary, and 382 occasional students.

Cholera in Galicia.

According to official returns 35 cases of cholera, with 20 deaths, occurred between Aug. 23rd and Sept. 20th. During the last week 22 cases, with 10 deaths, have been reported—3 in Berczovica, 14 in Tarnopol, 4 in Wertelka, and 1 in Obelnica; the disease is raging in the districts of Brody and Rohatyn, but in Tarnopol it is limited to the town-gate Podole, which is inhabited by the Jewish population. After the occurrence of a case the relatives sometimes leave their home and settle in other parts of the town, but as this practice throws difficulties in the way of sanitary control an enumeration of all the inhabitants of the above quarter has been ordered. Travellers coming from Russia are subjected to a sanitary inspection in the frontier towns of Brody, Podwoloczyska, or Stojanow, and soldiers who arrive at Vienna from Galicia have to remain five days under supervision.

Sept. 21st.

Obituary.

SURGEON-GENERAL JOHN IRVINE, M.D. ABERD.,

HONORARY PHYSICIAN TO THE QUEEN.

WE much regret to announce the death, on the 21st inst., at his residence, Longridge-road, South Kensington, of Surgeon-General J. Irvine, M.D., Honorary Physician to the Queen, late of the Army Medical Staff. Dr. Irvine entered the army as an assistant surgeon in 1849. He saw a good deal of active service during the Indian Mutiny, having been with Havelock's column in the Royal Artillery (Maude's division) and present in several actions. From November, 1857, to March, 1858, he was with General Outram's force, and was present at the siege and capture of Lucknow by Lord Clyde, the relief of which has just been celebrated by the annual anniversary dinner. He also received a medal and clasp for service in Burmah in 1886. The late officer acted as head of the sanitary branch of the Army Medical Department under the Director-Generalships of Sir William Muir and Sir T. Crawford; he went to Egypt as Principal Medical Officer of the force in 1883, and was present at Cairo during the last cholera epidemic in that country; he subsequently went to Madras as Principal Medical Officer of Her Majesty's forces in that Presidency, and retired from the service in 1888. Dr. Irvine was promoted to the rank of Deputy-Surgeon-General in 1876 and to that of Surgeon-General in 1883; and in 1885 he was appointed Honorary Physician to the Queen. The late Surgeon-General Irvine was a very popular officer, and his death will be much regretted by a wide circle of friends and acquaintances. He was sixty-seven years of age at the time of his death.

LEONARD WILLIAM BURTON, L.R.C.P. LOND., M.R.C.S. ENG.

ONE of the special risks attendant on medical practice has just been made apparent by the lamented death of Mr. L. W. Burton of Burton-on-Trent. This gentleman, who was a successful student at St. Thomas's Hospital and became qualified in 1886, had almost ever since been in practice with his uncle, Mr. Perks of Burton, where he made many friends and gained the confidence and esteem of his patients in all ranks of life. With a well-established position among the practitioners of the town and the additional opportunities for useful work afforded by his connexion with the Infirmary, where he was one of the assistant surgeons, everything seemed to indicate a prosperous career, but these expectations were not to be realised. While assisting at an operation on Aug. 21st he had the misfortune to wound his thumb, and septicæmia ensued, terminating fatally on Sept. 6th. The funeral took place on Sept. 9th in presence of a very large and sympathetic company, the officiating clergy being the Vicar of Burton and the Vicar of St. Paul's Church. Mr. Burton, who was only in his thirty-sixth year, has left many surviving relatives to deplore his untimely and tragic decease.

VACCINATION GRANT.—Mr. Fredk. W. Lewis, Public Vaccinator of the No. 1 District of the Llandovery Union, has received the Government grant for efficient vaccination for the eighth time.

MEDICAL TRIAL.

SERIOUS CHARGE AGAINST A MEDICAL MAN.

MR. JOHN MINTER, the borough coroner for Folkestone, formally opened an inquiry on Thursday, Sept. 19th, touching the death of Gertrude Fanny Fletcher, who died in London on Sept 9th. Having briefly referred to the causes which led to the inquiry being held Mr. Minter adjourned the proceedings until Saturday, the 21st inst.

On Saturday, when the inquiry was resumed, Mr. Geoghegan and Mr. Bruce, instructed by Mr. Arthur Vernon, appeared for Dr. Wight, and Mr. Hempson, with Dr. A. G. Bateman, on behalf of the Medical Defence Union, watched the proceedings for Mr. Whitehead and Mr. Hannah. Mr. W. Lenn Walter, solicitor, represented Mr. Fletcher, the husband of the deceased.

The brother of the deceased woman having given evidence identifying the body,

Mary Anne Hawken was called and sworn. She said: I am a nurse in the habit of attending confinements. I am a widow, have had eleven children, and have had large experience in attending confinements. I was engaged to attend the deceased in her confinement. I took up my residence to attend her on Aug. 31st. On Saturday, Sept. 7th, Dr. Wight called in the forenoon part of the day. Mrs. Fletcher went to bed at night between six and seven. Dr. Wight was sent for later in the evening because she was rather worse and pains were coming on. Dr. Wight could not attend, and Mr. Whitehead came about eleven o'clock. He remained till about five o'clock in the morning. He examined the deceased and said her labour was very slow and he would send her a couple of pills to cause her to sleep. Mr. Whitehead came again next morning about ten and again examined the deceased. He said labour had just set in and that he would go round and see Dr. Wight and send him. Dr. Wight came between twelve and one, and he examined the deceased. He said when he left he would come in again in the afternoon. I examined the deceased myself, and in my judgment everything was right for an easy labour. At half-past four I sent for Dr. Wight. Dr. Wight arrived about six, accompanied by his son. He went into the bedroom where the deceased was, and sent me down to the drawing-room to his son for the chloroform. The son returned with me to the bedroom. Dr. Wight asked for two jugs of hot water. I left the room and returned with one. The chloroform had then been administered and Mrs. Fletcher had gone off. Dr. Wight attempted to use the forceps, inserted one blade and tried to insert the other. They continually came back. After some little time I said, "What is the matter with the instruments—won't they lock?" He made no answer. After a short time he tried to press the baby back into the body with his hand; I asked him what he was trying to do, and he replied that there was an obstruction between the baby's head and the bones, and part of the afterbirth was in the way. I said to him, "I can't make that out." He said that the child was so twisted that he wanted to get at the feet. I said, "That you will never do." He was about half an hour attempting to force the forceps. He again applied the instruments, after trying what he could do to turn the child. They did not lodge on that occasion. He then let go the instruments on to the bed. He tried to remove the obstruction with his hand. When he dropped the instruments he said to his son, "Go for Whitehead." He seemed to me to be very stupid, as though he had just recovered from a drinking bout. Mr. Whitehead came about ten minutes or a quarter of an hour after. When Mr. Whitehead arrived he said, "Well, nurse, what's the matter?" I said, "I don't know, doctor; something serious, I am afraid." Dr. Wight's son said to Mr. Whitehead, "She is strong. We had something to do to get her off. She has had six ounces of chloroform already." Mr. Whitehead examined the deceased in the ordinary way, and I saw two pieces of what I believed to be the neck of the womb protruding from the parts. Mr. Whitehead took them in his fingers and said, "What's this?" Dr. Wight said, "That has been the obstruction—part of the afterbirth between the baby's head and the bone." Mr. Whitehead said, "This is not a bit of the afterbirth," and he ran his fingers through them. They then both left the room and went into an adjoining room. They returned together in a few minutes. Mr. Hannah was sent for and arrived in about ten minutes. When he came Dr. Wight and Mr. Whitehead were present. I could not hear what Mr. Hannah said. I left the room for about ten minutes and on my return I went for a candle. Mr. Whitehead said, "Come, nurse, where's your scissors and thread?" The baby was born and on the bed. I took the baby up and Mr. Whitehead severed the cord. The afterbirth came in a very few minutes. The afterbirth, which I examined, was perfect. Mr. Whitehead gave me directions as to attending the deceased during the night, but nothing as to cleansing. I said to Mr. Whitehead, "I'll attend to Mrs. Fletcher." He replied, "Don't you do anything until Dr. Wight and myself come in the morning." He did not say why. I said, "I must do something in the way of changing her and cleaning up some of this. Don't you think I had better use a syringe?" He said she was to remain as she was until Dr. Wight or himself returned in the morning. Dr. Whitehead came on Monday morning about eight or nine o'clock. He examined the deceased and said I was not to cleanse her. He came again about five o'clock in the afternoon. Mr. Hannah came in on Monday about two o'clock. When Mr. Whitehead came in the afternoon he did not give me any directions. Dr. Griffith came just after midnight on Sunday night. When he arrived Mrs. Fletcher was very ill. She died on Monday night between eight and nine. Mr. Whitehead was in the room when she died. Just previous to her death I left her for a few moments to attend to the child. In my absence she got out of bed on to the floor. Mr. Whitehead was downstairs. He returned with Mr. Fletcher, and they took Mrs. Fletcher up and laid her on the bed. Mr. Whitehead said, "Oh, my God, that's her womb on the floor," and he put it back. She was quite cold below her knees at two o'clock. After she died I said to Mr. Whitehead, "This is a very serious case," and he said, "Now, nurse, now, nurse." Mr. Fletcher said, "Nurse is quite right." I said to Mr. Whitehead, "If I am not a witness against the man in this world I shall be in the next."

By Mr. Geoghegan: Dr. Wight appeared dazed and stupid, and this is my reason for thinking he was recovering from a drunken bout.

John Henry Fletcher, the husband of the deceased, in the course of his evidence, said he told Mr. Whitehead he did not like the appearance of Dr. Wight, and asked him to take the case up. Mr. Whitehead said he did not wish to take the case out of Dr. Wight's hands. He went to Mr. Hannah, and he declined on the same grounds. He then went to see Dr. Wight and told him he desired further advice. Dr. Wight mentioned the name of Dr. Griffith, and directed Mr. Fletcher to go to his surgery for the address. He requested an audience with Dr. Wight later through the speaking-tube. He declined to grant it; he said he had done with the case, or words to that effect. "You have got Whitehead—keep him." On the arrival of Dr. Griffith he told witness his wife was in a very critical state. After his wife's death he (Mr. Fletcher) desired to have her body examined before interment, and called on Dr. Wight and gave him notice of this intention. Dr. Wight said, in effect, that he did not hold himself responsible for the deceased's death. Dr. Wight said Mr. Whitehead had ruptured her. Dr. Wight said he should not come to Folkestone, and he knew of no one at Folkestone to represent him. He (Mr. Fletcher) went to the Inspector of Police for the district in London and made a communication to him of the circumstances previous to the body being conveyed to Folkestone.

By Mr. Geoghegan: Dr. Wight appeared in a dazed and confused condition.

In reply to questions by the jury Mr. Geoghegan said Dr. Wight was at home seriously ill, and had arranged with Mr. Whitehead to take his night work.

Mrs. Hawken, recalled, was asked by Mr. Hempson if Mr. Whitehead at any part of the case used the instruments. She replied, "He did not."

Florence Fletcher, sister of Mr. Fletcher, said she was with her sister-in-law on the Saturday, and was in the drawing-room when Dr. Wight and his son came.

By Mr. Geoghegan: Dr. Wight appeared to be dazed and stupid, and in my opinion he was the worse for drink.

Charles Capon, a chemist, and Nelson Perry, a bricklayer, gave evidence as to Dr. Wight appearing in a dazed and stupefied condition on Sunday night, Sept. 8th.

Mr. Henry E. Whitehead was called and detailed his connexion with the case. He gave evidence as to breaking the waters. "I simply broke the membranes," he said, "and did not rupture anything. I simply did what is done in every confinement." This was on Saturday.

By the Coroner: You heard the nurse's evidence.—Yes. Did you say when you took the pieces in your fingers, "What is this?"—I cannot remember. I cannot say whether her evidence is true or not. Dr. Wight was excited and nervous.

By Mr. Geoghegan: In the spring of this year Dr. Wight was laid up; he had a severe attack of influenza, followed by insomnia, and he had been taking large quantities of chloral and bromide. That would make a man in a dazed and stupid condition?—Yes. And he had asked you to take his night work?—We had a constant arrangement, not necessarily for night work. His articulation was thoroughly clear. He did not smell of drink. Anything of the nature of chloral or morphia would place a man in much the same position as one in drink.

By the Coroner: The chloral has a stupefying effect on a person. Do you think a man in that state ought to attend a confinement?

Mr. Geoghegan objected to the question. Witness was there to show that Dr. Wight was sober, but suffering from an illness that might be mistaken for drunkenness. Could a man in such a state distinguish from right and wrong?

The Witness: Chloral has a thoroughly deteriorating effect upon the brain.

Mr. Frederick Richard Hannah said he felt it his duty after making an examination to call the husband's attention to the serious and critical condition of his wife. The bowels protruded through a rent which was about two inches in length in the posterior wall of the vagina. The rent must have been caused by some violence.

By Mr. Geoghegan: I knew that Dr. Wight had been very ill and should not have been at work. A man suffering from an overdose of choral and bromide would show the same symptoms as he would in the case of alcohol.

Dr. W. S. A. Griffith said: I was called by Mr. Fletcher at midnight and arrived about 1 o'clock on Monday morning. Mr. Whitehead was there to meet me, and he explained to me the nature of the case, and asked my opinion as to what could be done. I examined Mrs. Fletcher and satisfied myself of the correctness of his statements. The bowels had been carefully replaced, and I advised that nothing further could be done unless she rallied. She was then in a very feeble condition. I was called again on Monday evening and arrived just after her death.

By Mr. Geoghegan: Lacerations of the same parts may occur spontaneously, but I do not think this was so in this case.

By the Coroner: Had the instruments been used skilfully the laceration should not have taken place. I should like to add that I am of opinion, from the medical evidence that has been given, that the child's head remaining high up so long made the laceration more easy than it would otherwise have been.

The proceedings were then adjourned till Tuesday, Sept. 24th, Mr. Geoghegan being again assisted by his junior, Mr. J. A. Bruce.

The evidence taken on the preceding Saturday being read, Mr. Whitehead desired to make a correction. He did not state that the womb had fallen on the floor. He did not pick up anything from the floor; but on putting Mrs. Fletcher back to bed he replaced a portion of the protruding bowel.

Mr. Dobbs, called, said that at the request of Mr. Fletcher he attended at Folkestone Cemetery and examined the body of Mrs. Fletcher, and saw some sewing of the body which he could not account for.

The Coroner stated that the sewing was done after death.

The Witness: In company with Dr. Barry I made a thorough post-mortem examination on Sept. 19th. I found the body in an advanced state of decomposition. The abdomen was considerably distended and there was bruising and laceration of the external genitals. The vulva was sewn up. The perineum was ruptured. Between the stitches there were small pieces of bowel protruding. That was externally. Internally all the organs were soft and decomposing. The cervix was swollen, congested, and ragged-looking. The posterior lip was almost completely torn off. The peritoneum called the retro-uterine pouch was torn squarely off the back of the uterus, making a lateral slit through which three fingers could be passed. Passing through this slit into the vagina was bowel to the length of 3 ft. 6in. In the anterior wall of the rectum was a lacerated wound 6 in. long.

Mr. Barrett gave similar testimony. He said: The perineum was ruptured extensively, leaving only a ring formed by the sphincters,

Behind the womb there was a slit in the peritoneum connecting with the vagina. The body of the uterus was large, soft, and flabby, about eight inches in length. Inside the surface was rough, and there were several small blood clots. The site where the placenta had been detached was easily discerned. The neck of the uterus was swollen and ragged-looking, the posterior lip having been almost completely torn off. At the back of the uterus above the cervix the peritoneum was torn off transversely. The anterior wall of the rectum was split up to the extent of about six inches. The body of the uterus was perfectly fixed with its ordinary ligaments in its natural position.

The Coroner intimated that this would finish the evidence, and remarked that he thought it fair to Mr. Wight not to call him as a witness. Mr. Geoghegan, however, decided that his client should be put into the witness-box, and he was examined by Mr. Bruce.

Dr. George Wight said: I attended Mrs. Fletcher on the Saturday, and I had seen twenty or thirty patients on that day, visiting them at their homes. On Sunday morning Mr. Whitehead came to me and made a report of the condition of the deceased. He said she was going on slowly, but that he had ruptured the membranes. On the afternoon of Sunday I went home at two o'clock, took a strong dose of chloral, and lay down on my bed. I had been ill since Feb. 22nd, suffering from the after-effects of influenza, insomnia, and loss of appetite. I had been twice away—once to Eastbourne and once to Brighton. When I attended Mrs. Fletcher I inserted the lower blade of the forceps and tried to put on the upper blade, but failed. In withdrawing it I think I must have ruptured the vagina. I had a previous attack of influenza in 1891. I have had it severely on two occasions. On Saturday and Sunday I was unable to take my usual food, chiefly living on milk. I have been in practice thirty years, and during that time I have attended about 5000 cases of confinement. This is the only case in which I have had unusual difficulty, although I have had difficult cases. I have never had a case before that required a judicial inquiry.

Did you use all competent skill on this occasion?—I did my best. I was suffering on the Saturday night from vertigo. I took a strong dose at 2 P.M. on Sunday of chloral bromide and digitalis.

By the Coroner: Will you tell the jury why you declined to go on with the case when Mr. Fletcher requested you on the Sunday?—I considered Mr. Whitehead had taken my place.

But you were engaged for the case?—Yes; but Mr. Fletcher preferred Mr. Whitehead. I greatly regretted that I did not attend.

By Mr. Geoghegan: I only had a little whisky and water since noon on Saturday.

Mr. Geoghegan then, by permission of the coroner, addressed the jury.

The Coroner, in a lengthy summing-up, took occasion to express his surprise that the inspector of police in London had not instituted inquiries, and also that the six or seven medical men in Folkestone who had been notified of the matter had not communicated with him.

The jury returned a verdict of "Manslaughter" against Dr. Wight, whom the coroner admitted to bail. Dr. Wight was on Wednesday, the 25th, formally charged at the Clerkenwell Police-court and remanded. The magistrate also admitted him to bail.

Medical News.

UNIVERSITY OF DURHAM: FACULTY OF MEDICINE. The following candidates have passed the examination for degrees in Medicine and Surgery at the College of Medicine, Newcastle-upon-Tyne, being the second examination for the degree of Bachelor in Medicine:—

Anatomy, Physiology, and Materia Medica.—First-class Honours: George Grey Turner, College of Medicine, Newcastle-upon-Tyne; Edwin Gilbert Emerson Arnold, M.R.C.S., L.R.C.P., St. Thomas's Hospital. *Second-class Honours:* Vincent Burrow, St. Mary's Hospital; Robert Fletcher Moorshead, Bristol Medical School; Thomas Streatfeild, M.R.C.S., L.R.C.P., University College Hospital, London; and Henry Coxon Coxon, College of Medicine, Newcastle-upon-Tyne. *Pass List:* Joseph Ellis Baker and Frank Anthony Cooke, College of Medicine, Newcastle-upon-Tyne; William Wilkie Deans, Yorkshire College, Leeds; Charles Edward Fenn, King's College; John Maxwell Gover and Charles Johnson, College of Medicine, Newcastle-upon-Tyne; Ralph Albert Rogers Lankester, University College Hospital, London; Walter Herbert Lister, William Byron Milbanke, and George Whitson Middlemiss, College of Medicine, Newcastle-upon-Tyne; Francis Pope, Mason College, Birmingham; Horace Clare Regnart, Guy's Hospital; and Bertram Crossfield Stevens, St. Thomas's Hospital.

PRESENTATION.—Mr. David S. Park, F.R.C.S., L.R.C.P. Edin., of Houghton-le-Spring, Durham, has been the recipient of a valuable scarf-pin from the members of the ambulance class in that town, in appreciation of his services to them.

SMALL-POX AT SHEPTON MALLET.—An outbreak of small-pox has occurred at Shepton Mallet workhouse. The medical officer of health (Mr. J. T. Hyatt) reported to the guardians at their last meeting that all the cases in the infectious hospital were progressing favourably. One fresh case had been admitted from outside the workhouse on Sept. 17th, and on the 21st the attendant had developed the disease. The total number of cases at present in the hospital was five. The inhabitants of West Shepton have sent a petition to the guardians complaining of the close proximity of the infectious hospital to the roadway and dwellings.

AT the Norwich Church Congress Canon Venables will preside over a meeting of the Funeral Reform Association on Monday, Oct. 7th, at 4 P.M., when papers will be read on Earth-to-Earth Burial, State-regulated and Free Burial, and Child Insurance. Tickets can be had on application to the Honorary Secretary, Westow Vicarage, York. The meeting is to be held at the Maid's Head Hotel.

THE JENNER RELICS.—A subscription has been opened in Bristol to provide for the purchase and retention in Bristol of the celebrated collection of relics belonging to Jenner in connexion with his introduction of vaccination, the idea of which he is said to have conceived in 1780. The collection at present belongs to Mr. Frederick Mockler of Wotton-under-Edge, and was exhibited by him at the Bristol Exhibition in 1893, and also more recently in London, where it attracted a considerable amount of attention. Earl Fitzhardinge heads the subscription list with £10 10*s*. This seems a very opportune time for purchasing this interesting collection, as the centenary of the discovery of vaccination is in 1896, and the Russian National Health Society has already announced its intention of celebrating the event.

A NEW HYDRAULIC STEAM LIFEBOAT.—It is a subject for general satisfaction that the service of steam power has at last been utilised with a fair promise of success in the navigation of coast lifeboats. A full description of the latest example of her class, the *President van Heel*, just built on the Thames, has been given in the daily press. It is therefore superfluous for us to quote in detail the evidences of persevering ingenuity and of adaptation displayed in her structure, which have so far been fully confirmed by her official trials. As yet the number of steam lifeboats belonging to this or other countries is very small. For obvious reasons the construction of a boat uniting in herself the qualities of strength and buoyance in the degree possessed by the type of craft used hitherto, but worked by steam, is a work of no ordinary difficulty. It is to be hoped that the seagoing efficiency apparent on a fair-weather trial will stand the severer test of storm experience. If so, we may congratulate ourselves upon a new departure of the most encouraging augury. No longer dependent upon the uncertain aid of steam tugs or the muscular power of human arms, however willing, the means of rescue at sea must become so much the more efficient and certain in their issue. To the rescued the consequent saving of time may make all the difference between illness or death and a rapid restoration of health and energy.

CASE OF SUICIDE AT THE MIDDLESEX HOSPITAL.—On Wednesday, Sept. 25th, at the coroner's court, Paddington, before Dr. Danford Thomas, an inquiry was held into the causes of the death of Alfred Brown, late porter of St. Saviour's Hospital, Osnaburgh-street, who committed suicide by jumping from the window of a ward on the third floor on Friday at Middlesex Hospital, where he was admitted last Thursday, Sept. 19th. He succumbed to his injuries on Saturday, Sept. 21st. Eliza Crofts, in charge of St. Saviour's Hospital, said the deceased was their porter. He seemed very steady, but had lately been low and unsettled. Dr. Wm. Wanklyn, the house physician, said the patient was admitted for general debility and muscular tremors. In his opinion he was suffering from an early stage of general paralysis of the insane. He saw him on the morning of the occurrence, but had not the slightest idea he would do anything, although he suspected something was wrong mentally. He saw him after the fall when he was quite sensible. He died of shock and collapse.—Ellen King, nurse in Forbes Ward, Middlesex Hospital, said she was in the ward a little after twelve, and had just been dressing the patient's foot. She went down the ward to take something away, and when she came back from the lavatory she saw him get out of bed and make for the window, which was half open. He put his foot on the chair, and opened the window wide. She ran up the ward, and got hold of his shoulder; he was half out, and in his nightshirt. She tried to hold him, but he got out head first, breaking the window. She put her arm out, and held him as long as she could; one of the patients helped her. Then he dropped fifty feet to the ground.—John Pullenger, porter at Middlesex Hospital, deposed to seeing the patient fall.—The Coroner having summed up, the jury returned a verdict of "Suicide while of unsound mind."—Dr. Wanklyn expressed his sympathy with the relatives on behalf of the Middlesex Hospital.

FOOTBALL CASUALTIES.—During a game at Durham on the 14th inst. a Bede College student fractured his femur.—On Saturday last, in a match between the Preston North End and Celtic teams at Preston, the North End centre forward sustained a compound fracture of the kneecap, and was removed to the infirmary.

LITERARY INTELLIGENCE.—The coming publishing season promises to be a prolific one. Messrs. Baillière, Tindall, and Cox announce as ready on Oct. 1st a new Manual of "Physiology," by Professor Stewart, with coloured plates; a new edition of Peddie's "Physics"; new works by Dr. John F. H. Broadbent on "Adherent Pericardium," by Professor Max Knies on "The Relations of the Eye to Diseases of the Body," and by Dr. Sachs on "The Nervous Diseases of Children." They will also publish an authorised translation of Professor Haab's well-known "Atlas of Ophthalmoscopy," with sixty-four coloured plates, by Mr. Ernest Clarke, and a translation of Professor Kaposi's classic on "Diseases of the Skin."

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward it to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week for publication in the next number.*

BERKSFORD, R., M.D. Glasg., L.R.C.P. Lond., L.R.C.P., L.R.C.S. Edin., has been reappointed Medical Officer by the Oswestry Rural District Council.

BRUNTON, T. L., M.D., C.M. Edin., B. and D Sc., F.R.C.P. Lond., has been appointed Physician to the St. Bartholomew's Hospital.

CAINE, N., M.B., C.M. Edin., has been appointed Junior House Surgeon to the Infirmary for Children, Liverpool.

COSENS, F.R.S., L.R.C.P. Lond., M.R.C.S., been appointed Medical Officer to the principal Lodge of Oddfellows in Dorchester.

FOX, J. A., L.R.C.P. Lond., L.R.C.P., L.R.C.S. Edin., L.F.P.S. Glasg., L.S.A. Lond., has been appointed Medical Officer and Public Vaccinator for the No. 1 District and Workhouse, Penzance Union, vice A. W. T. Steer, resigned.

FREER, J. H., L.R.C.P. Lond., M.R.C.S., has been reappointed Medical Officer for Rugeley.

FYFFE, W. KINGTON, M.B., M.R.C.P., has been appointed Assistant Physician to the City of London Hospital for Diseases of the Chest, Victoria Park, E.

GARRETT, J. H., M.D. Durh., B.S., D.P.H. Camb., has been reappointed Medical Officer of Health for the Borough of Cheltenham.

GIRVAN, DAVID W., M.B., M.S. Glasg., has been appointed Medical Officer for the Cardiff South District of the Cardiff Union.

HELBY, E. H., M.R.C.S., L.R.C.P., D.P.H., has been appointed Resident Medical Officer to the Croydon Borough Hospital.

HERRINGHAM, W. P., M.D. Oxon, F.R.C.P. Lond., M.R.C.S., has been appointed Assistant Physician to St. Bartholomew's Hospital.

HIGGINSON, GEO., B.A. Camb., L.S.A., has been appointed Medical Officer to the Workhouse and the No. 1 Sanitary District of the Church Stretton Union.

HOYLE, J., M.B., C.M. Edin., has been reappointed Medical Officer for the Soyland Urban District.

LEIGH, ALBART, L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer for the Malpas Sanitary District of the Whitchurch Union, Salop.

MCCOMBE, R., L.R.C.P., L.M., L.R.C.S. Irel., has been appointed Medical Officer for the Bassingbourne District of the Royston Union.

MACDONALD, JAS., M.B., C.M. Edin., has been appointed Medical Officer of Health for the Carlisle Rural Sanitary District, vice Hall, deceased.

MCDOUGALL, ALEX. H., L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer for the Workhouse of the Parish of Birmingham, vice Barber, resigned.

MONTSERRAT, K. W., M.B., C.M., has been appointed House Surgeon to the General Hospital, Great Yarmouth.

MOORE, T., M.R.C.S., L.M., has been appointed Medical Officer for the Hazel Grove, Handforth, and Brennington Districts of the Stockport Union.

NESBITT, R., L.R.C.P., L.M., L.R.C.S. Irel., has been appointed Medical Officer of Health by the Sutton-in-Ashfield Urban District Council.

PARE, J. W., M.D., C.M. Edin., L.D.S., has been appointed Lecturer on Dental Anatomy and Physiology to the National Dental Hospital, vice Sidney Spokes, resigned.

REYNOLDS, H. D., L.R.C.P., L.M. Edin., M.R.C.S., has been reappointed Medical Officer for the Pembroke Urban District.

SANDFORD, H. V., L.R.C.P. Lond., L.F.P.S. Glasg., has been reappointed Medical Officer of Health for the combined Rural Districts of Bromyard, Hereford, Ledbury, Leominster, and Weobley.

SELLS, C. J., L.R.C.P. Lond., M.R.C.S., has been reappointed Medical Officer for Worplesdon, the Guildford Union.

SKIPWORTH, H., L.R.C.P., L.M. Irel., M.R.C.S., has been reappointed Medical Officer of Health for the Quorndon Urban Sanitary District.

SWAILES, THOS., M.D. St. And., L.R.C.P., L.M. Edin., M.R.C.S., has been reappointed Medical Officer of Health, for South Crosland.

TYLECOTE, J. H. L., M.B., B.Ch. Vict., has been appointed House Surgeon to the Lancaster Infirmary.

WALKER, ALLAN, M.B., C.M. Glasg., has been appointed Medical Officer of Health for the Wetslade Urban Sanitary District.

WARD, FRANCIS, M.B., C.M. Edin., has been appointed Second House Surgeon to the East Suffolk Hospital.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

EAST LONDON HOSPITAL FOR CHILDREN AND DISPENSARY FOR WOMEN, Glamis-road, Shadwell, E.—Assistant Physician, to see out-patients.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—Resident House Physicians.

LONDON FEVER HOSPITAL, Liverpool-road, Islington, N.—Assistant Resident Medical Officer. Salary £120 per annum.

LONDON HOSPITAL, Whitechapel, E.—Medical Electrician.

METROPOLITAN HOSPITAL, Kingsland-road, N.E.—Assistant Surgeon.

MILLER HOSPITAL AND ROYAL KENT DISPENSARY, Greenwich-road, S.E.—Junior Resident Medical Officer, for six months. Salary at the rate of £30 per annum, with board, attendance, and washing.

PARISH OF ST. MARY'S, Islington, N.—Resident Assistant Medical Officer and Dispenser at the Workhouse and Infirmary, St. John's-road, Upper Holloway. Salary £80 per annum, with rations, apartments, and washing, or allowance in lieu of same. Applications to the Clerk, Guardians' Offices, St. John's-road, Upper Holloway, N.

PETERBOROUGH INFIRMARY AND DISPENSARY.—A Physician, a Surgeon, and an Assistant Physician.

ROYAL ALEXANDRA HOSPITAL FOR SICK CHILDREN, Dyke-road, Brighton.—House Surgeon. Salary, £80 per annum, with board, lodging, and washing.

SOUTH DEVON AND EAST CORNWALL HOSPITAL, Plymouth.—House Surgeon. Salary £100, with board and residence.

SWANSEA HOSPITAL.—House Physician, for one year. Salary £50 per annum, with board, lodging, and laundress.

WIRRAL CHILDREN'S HOSPITAL, Woodchurch-road, Birkenhead.—Resident House Surgeon. Salary £50 per annum, with board, lodging on the premises, and washing. Applications to the Hon. Sec., 25, Lord-street, Liverpool.

Births, Marriages and Deaths.

BIRTHS.

ADDISON.—On Sept. 22nd, at Westbourne, Tenterden, Kent, the wife of W. B. Addison, B.A., M.B., B.C. Cantab., M.R.C.S. Eng., L.R.C.P. Lond., of a son.

BENJAMIN.—On Sept. 17th, at The Old Hall, Dorrington, near Shrewsbury, the wife of J. K. Kinsman Benjamin, M.R.C.S. Eng., L.R.C.P. Lond., of a daughter.

EMERSON.—On Sept. 23rd, at Melton House, Belgrave, Leicester, the wife of D. N. Bomford Emerson, M.B. Dubl., of a daughter.

HAMERTON.—On Sept. 4th, at Southampton-street, Covent-garden, the wife of G. A. Hamerton, F.R.C.S. Eng., of a son.

LANGRAN.—On Sept. 19th, at The Lawn, Axminster, Devon, the wife of W. Langran, L.R.C.P. Edin., of a daughter.

POWER.—On Sept. 22nd, at Hoe Park-terrace, Plymouth, the wife of Surgeon-Major E. R. Power, Army Medical Staff, of a daughter.

VERNON.—On Sept. 18th, at Drayton, Boscombe, the wife of Arthur Heygate Vernon, F.R.C.S., of a daughter.

MARRIAGES.

DIXON—NADIN.—On Sept. 18th, at St. James's, Barton-under-Needwood, Thomas Dixon, M.R.C.S., L.R.C.P., of Keeleshall, Staffs, to Emilie Maude Duclos, third daughter of the late N. Guy Nadin, of Stapenhill, near Burton-on-Trent.

ROWSE—HADDOW.—On Sept. 21st, at the Wesleyan Church, Barry-road, Camberwell, S.E., Edward Leopold Rowse, L.R.C.P. Lond., M.R.C.S., of Putney, to Elizabeth (Grace), second daughter of Nathaniel Haddow, of East Dulwich.

SPRIGGE—MOSS.—On Sept. 16th, at St. James's Cathedral, Toronto, Samuel Squire Sprigge, M.B., B.S. Cantab., eldest son of the late Squire Sprigge, of Watton, Norfolk, to Mary Ada Beatrice Moss, second daughter of Charles Moss, Q.C., of Toronto, Canada.

WEBB—CLARK.—On Sept. 25th, at the Parish Church, Cheadle, Cheshire, by the Rev. F. A. Maclona, M.A., rector, assisted by the Rev. S. Gauden, Rector of Coal Island, County Tyrone, Frank Webb, L.R.C.P., M.R.C.S., Newcastle, Staffordshire, son of James Webb, Brooklands, Cheadle, to Annie Louisa, second daughter of the late Ludlie Clark and Mrs. Clark, Park House, Cheadle, Cheshire.

DEATHS.

BAILLIE.—On Sept. 19th, at Gloucester-walk, Campden-hill, Kensington, W., George Baillie, M.D., of Holmwood, Uddingston, formerly Deputy-Inspector-General of Hospitals of H.M. Madras Medical Service, aged 70 years.

IRVINE.—On Sept. 21st, at Longridge-road, South Kensington, Surgeon-General John Irvine, M.D., Honorary Physician to the Queen.

STACEY.—On Aug. 21st, at Durban, Port Natal, William Henry Waterhouse Stacey, M.R.C.S. Eng., L.R.C.P. Edin., recently of Grimston, King's Lynn, in his 33rd year.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages and Deaths.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Sept. 26th, 1895.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Dry Bulb.	Wet Bulb.	Solar Radia in Vacuo	Maximum Temp. Shade.	Min. Temp	Rainfall.	Remarks at 8.30 A.M.
Sept. 20	30·37	N.E.	56	52	106	67	48	...	Bright
" 21	30·40	S.E.	55	52	102	65	49	...	Cloudy
" 22	30·31	E.	61	57	109	71	48	...	Bright
" 23	30·24	S.E.	53	52	96	75	51	...	Foggy
" 24	30·21	S.E.	63	60	104	83	53	...	Hazy
" 25	30·18	S.W.	65	63	118	82	62	...	Hazy
" 26	30·23	S.E.	66	63	108	80	61	...	Hazy

Notes, Short Comments, and Answers to Correspondents.

EDITORIAL NOTICE.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this Office.

Lectures, original articles, and reports should be written on one side only of the paper.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers, not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale, and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICE.

"THE LANCET" AND ACCIDENT INSURANCE.

A LITHOGRAPHED CIRCULAR LETTER, emanating from an office in the Strand district, is being sent to members of the medical profession, offering to supply them with THE LANCET, in conjunction with an accident insurance policy. The Proprietors of THE LANCET are in no way connected with the scheme (of which they cannot approve), and were not aware of its inception until their attention was called to it by a reader who had received the circular.

"COMMON-SENSE HOMŒOPATHY."

DR. J. M. MOORE has sent to the *St. Helens Newspaper and Advertiser* a copy of his book, showing that homœopathy is the only scientific treatment by drugs. The correspondent who sends us the cutting seems delighted with the compliment expressed in the review and with the system too. We must not blame him too severely. Homœopathy shows best in newspapers, like other vaunted systems.

Mr. Angus E. Kennedy.—Our correspondent is right. There is no way of preventing such gross quackery "while patients allow themselves to be so gulled." The number of fools, if not so great as in Mr. Carlyle's time, is still large.

MEDICAL EXAMINATIONS IN PARIS.

To the Editors of THE LANCET.

SIRS,—I wish to know what fees have to be paid by a medical student at Paris for examinations and what other charges are incurred, and whether it is compulsory to pass an examination in arts; if so, of what nature this examination is. I should feel very greatly obliged if you could either give me the information I seek or refer me to some one from whom I could obtain accurate information.

I am, Sirs, yours truly,

Sept. 24th, 1895. A STUDENT.

INDIAN MEDICAL SERVICE.

Rubicon.—We cannot within reasonable limits reply to all our correspondent's questions, but will do our best. The Indian Medical Department is a good service. Entrance into it is by competitive examination. The difficulty of securing an appointment will naturally depend upon the number of vacancies to be filled and the number of candidates competing for them at the time. The examination is a good one; but a properly educated man of average abilities would, we think, have a fair chance of success. It is, of course, impossible to say whether the climate would agree with him or not. An officer can with prudence live upon his pay. The depreciation of the rupee is owing to the present rate of exchange, and affects those who have to remit money home, not those who spend their pay in the country. Those who succeed in getting civil appointments and civil surgeoncies at Indian stations have good professional opportunities and advantages. Young officers have generally at first to do military duty for a time, and they can, if they like, remain in military employ. If our correspondent has no definite opening in this country, and desires to enter one of the services, we think the Indian Medical Service offers many advantages. For the terms and other particulars our correspondent is referred to the Students' Number of THE LANCET, published on Sept. 7th, and to the Military Secretary at the India Office, Whitehall.

G. P. K. G. writes: "In reply to the inquiry of 'Horseflesh,' made in THE LANCET of Sept. 21st, I do not think he could find a more useful work than that written by Captain M. Horace Hayes. It is entitled, 'Soundness and Age of Horses,' and is published by Messrs. W. Thacker and Co., 87, Newgate-street, E.C. The price of the volume is, I believe, 8*s.* 6*d.*"—*Mr. R. Emmett* (Portsmouth) strongly recommends "'Horses and Stables,' by Lieut.-General Sir F. FitzWygram, Bart., published by Messrs. Longmans, Green, and Co., price 5*s.*, as likely to suit the requirements of 'Horseflesh.'" Of this book also *Medicus*—who, by the way, gives its price as 2*s.* 6*d.*—avers: "It gives everything anyone wants to know on the subject."

Accounts.—We know of no legal sanction for such charges. A creditor can enforce payment of his debt when it is due. If he allows time to elapse before doing so, it is not the fault of the law.

Anxious should consult a qualified medical practitioner. This course should have been followed at first.

"UNITED BROTHERS-IN-LAW AND MEDICAL ADVERTISEMENT."

To the Editors of THE LANCET.

SIRS,—With regard to a newspaper paragraph referring to me which you reprint in last week's issue of THE LANCET kindly allow me to state: 1. That it appeared absolutely without my knowledge. I in no way knew of or connived at its production nor inspired either its matter or manner. 2. That on its being brought to me by a friend the next morning I immediately went to the editor of the paper, pointed out to him the impropriety, and asked him to insert a disclaimer stating that the paragraph was published without my knowlege or consent. He was quite courteous, but declined to do this, standing upon his right to publish news about anybody or anything at his own discretion in the interests of his paper and its readers. He also pointed out to me what was quite plain—that few would believe a disclaimer; most would look upon it as a manifest artifice and a finish to the advertisement. Now, unless I had sent a town crier round with his bell, I do not quite know how I could do more in this not very important matter. I sincerely hoped that the unpleasant incident was closed, and the paragraph and all its faults dead and forgotten, until I saw THE LANCET yesterday.

I am obliged to your correspondent whose zeal for the honour of the profession spotted the offence so promptly, and whose sole object was, I am sure, to afford me through you this opportunity of setting myself right with my brethren, and remain, Sirs,

Yours faithfully,

Beachfarm-rd., Southsea, Sept. 25th, 1895. THOS. E. LEADBEATER.

*** We do not see what more Mr. Leadbeater could have done and we have pleasure in publishing his letter.—ED. L.

DIPLOMAS IN PUBLIC HEALTH.

To the Editors of THE LANCET.

SIRS,—Can you kindly give me any information as to which is the best degree in public health or sanitary science for a would-be candidate for the post of medical officer of health to obtain before offering himself for election? The D.P.H. Camb., seems to be completely discounted by rural sanitary authorities, if one may judge by the treatment meted out to the deluded diplomates who travelled from the four quarters of the kingdom to the meeting of a certain rural district council. Eleven candidates were present, nine held the D.P.H. Camb., and a tenth had previous experience of the work, but the eleventh—unqualified in sanitation—was elected. How are the rejected ones to improve their chances for the future? I am, Sirs, yours obediently,

Sept. 25th, 1895. CANTAB.

MEDICAL MEN AND ADVERTISING DENTISTS.

IT is very remarkable to see in the newspapers puffing testimonials to advertising dentists written by medical men. There are two such testimonials in the *Deal and Walmer and Sandwich Mercury*. How is the profession of dentistry to be raised if members of the profession of medicine sanction such a system of advertising as they would be ashamed to use in their own case?

U. C. H.—The usual charge for a practice or part of one is two years' purchase. Our correspondent can make the calculation for himself. His long services as an assistant may entitle him to special consideration.

T. B. G.—We never recommend individual practitioners. Our correspondent should consult his own medical man.

LAMP ACCIDENTS.

To the Editors of THE LANCET.

SIRS,—At the present moment when inquiries are being made as to the cause of lamp accidents I think my experience may help a little. I have now been accustomed to the use of lamps for over thirty years and have never had any serious accident. I have used both cheap and dear lamps with equal results, but I am convinced that had I always used a cheap oil with a low flashing point I should have had more than one serious accident, consequently I am driven to the conclusion that the danger lies in the oil and not the lamp.

For the benefit of your readers I give notes of the following occurrences. A glass lamp was taken upstairs to warm a bedroom. After a time the house was found to be full of smoke. On investigation the wick of the lamp was found to have slipped down into the oil chamber, where it lay smouldering and sending out dense volumes of smoke. The lamp was carried into a bath-room and placed in a bath full of water. A large glass duplex lamp hanging in my surgery fell from its fastenings and was, of course, completely smashed. The lamp went out and no harm was done except a horrid mess. Going into my surgery one morning I found a lamp which was kept burning all night completely enveloped in flame, the oil-gas issuing from the union for screwing the burner on to the holder. I took a piece of flannel and wrapped it round the lamp, putting the flame out. My groom, who had charge of the lamps, told me he had once before found the lamp in flames and had put it into a bucket of water and at the same time gave me the key to the solution of the question, why no serious accident had resulted? He asked me why it was that when at home he happened to spill any oil if he applied a lighted match it at once caught fire and burnt away, but that if he did the same with my oil the oil put the match out. I told him I thought it was because he used the cheap oil with a low flashing point usually sold by oil carts, while I used a better oil with a high flashing point (of course I explained to him the meaning of the term), and I think your readers must come to the same conclusion.

I am, Sirs, yours truly,

Sept. 24th, 1895. H. J.

LAVAGE OF THE STOMACH AS A PRELIMINARY TO ANÆSTHESIA IN OPHTHALMIC OPERATIONS.

To the Editors of THE LANCET.

SIRS,—In the operations for the extraction of cataract where it is necessary to induce general anæsthesia, a certain risk of escape of the vitreous humour always accompanies the subsequent vomiting; and although in hospital practice it is easy to see that the patients are properly prepared for chloroform narcosis, the same does not always hold good in private practice, where from motives of mistaken kindness food is often surreptitiously given. In a case of cataract extraction, after the induction of anæsthesia, I washed out the stomach, and by that means removed a very good breakfast, and the anæsthesia passed off without any vomiting. A preliminary lavage would in any case remove the mucus which accumulates in the stomach in the early morning, and must contribute itself in no small way to produce vomiting. It is my intention in subsequent cases of a like nature to effect a preliminary lavage.

I am, Sirs, yours faithfully,

Concordia, Argentine Republic. S. L. WOOLMER.

THE LEGAL VALUE OF THE USUAL BOND.

To the Editors of THE LANCET.

SIRS,—I am informed that quite recently a judgment was given in a London court to the effect that the usual bond between principal and assistant not to practise was illegal and valueless, or to that effect. Will you kindly inform me in THE LANCET if this is correct, and if so, where I can see it or get a copy of it?

I am, Sirs, yours faithfully,

Sept. 16th, 1895. ENQUIRER.

*** The cases bearing on this point are very numerous—too numerous, indeed, to be cited here. The broad result is that such a bond, if the restriction be confined to a reasonably limited district, will be upheld; but if it be attempted by this means wholly to prevent the practitioner bound by it from practising at all, or to exclude him from an area extending beyond the reasonable requirements of the case, the agreement on this point will probably be set aside.—ED. L.

L. M.—If our correspondent will consult his own medical man he will no doubt obtain the information he seeks.

TOMATOES AND CANCER.

To the Editors of THE LANCET.

SIRS,—There is a very prevalent and firm belief, not by any means confined to the more ignorant classes, that tomatoes have a tendency to produce cancer. An authoritative statement in THE LANCET by some physician of eminence—or, if possible, by more than one—as to whether there is or is not a foundation for this belief, would, I venture to think, be of public utility. Possibly some of your readers may be able to trace its origin.

I am, Sirs, yours faithfully,

Sept. 23rd, 1895. J. F. C.

*** There is no evidence of such association.—ED. L.

DOES ILLNESS HAVE ANY BENEFICIAL EFFECT ON ITS SUBJECT?

To the Editors of THE LANCET.

SIRS,—I should be greatly obliged if any of your readers could give me instances (1) of an individual enjoying better health after an illness than before; and (2) of one disease diminishing the intensity of, or actually removing, another disease.

I am, Sirs, faithfully yours,

Devonshire-street, W., Sept. 24th, 1895. HARRY CAMPBELL.

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY.—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (1 P.M.), St. Mark's (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Royal Orthopædic (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.).

TUESDAY.—London (2 P.M.), St. Bartholomew's (1.30 P.M.), Guy's (1.30 P.M.), St. Thomas's (3.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1.30 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.).

WEDNESDAY.—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing-cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (2.30 P.M.), Gt. Ormond-street (9.30 A.M.), Gt. Northern Central (2.30 P.M.).

THURSDAY.—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (2 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.).

FRIDAY.—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.).

SATURDAY.—Royal Free (9 A.M. and 2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), University College (9.15 A.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), Cancer (2 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

SOCIETIES.

WEDNESDAY.—OBSTETRICAL SOCIETY OF LONDON.—8 P.M. Specimens will be shown by Dr. Duncan and others. Papers:—Dr. T. G. Stevens and Dr. Griffith: Notes on the Variation in Height of the Fundus Uteri above the Symphysis during the Puerperium, the Conditions which influence this, and the Practical Conclusions which may be drawn from such Observations.—Dr. G. D. Robinson: On certain Micro-organisms of Obstetrical and Gynæcological interest.

During the week marked copies of the following newspapers have been received:—*Westmorland Gazette, New York Medical Review, Nottingham Guardian, Redditch Indicator, Grimsby News, Hawick Express, Western Weekly News, Shrewsbury Chronicle, Wolverhampton Chronicle, Sheffield Telegraph, Leamington Spa Courier, Worcestershire Echo, Hull Daily Mail, Norfolk Daily Standard, Eastern Morning News, Birmingham Gazette, Manchester Courier, Scotsman, Leicester Post, City Press, Sussex Daily News, Vegetarian, Freeman's Journal, Northern Echo, Newcastle Leader, Manchester Guardian, Brighton Gazette, Liverpool Daily Post, Leeds Mercury, Times of India, Builder, Yorkshire Post, Pioneer Mail, Architect, Bristol Mercury, Citizen, East Anglian Daily Times, Liverpool Courier, Newry Telegraph, Sanitary Record, Local Government Chronicle, St. Bartholomew's Hospital Journal, New York Times, West Middlesex Standard, Reading Mercury, Weekly Free Press and Aberdeen Herald, Mining Journal, Hertfordshire Mercury, Local Government Journal, Le Temps, Le Courrier de la Presse, Surrey Advertiser, Fife News, Northern Echo, Norfolk Standard, Lincolnshire Echo, South-Eastern Herald, Kenilworth Advertiser, Huddersfield Examiner, Evening Telegraph (Dundee), &c., &c.*

Communications, Letters &c. have been received from—

A.—Sir Edwin Arnold, Lond.; Mr. C. E. Ady, Lond.; Mr. E. J. Ayres, Lond.; Andrea, Lond.; Anxious, Ashfield.

B.—Dr. F. Beach, Eastbourne; Dr. T. L. Brunton, Lond.; Mr. H. Brown, Wilts; Mr. J. Baker, Pentonville; Mr. G. H. Broadbent, Manchester; Mr. W. M. Beaumont, Bath; Messrs. Burgoyne, Burbidges, and Co., Lond.; T. B. Browne Ltd., Lond.; Benedict, Lond; B. B., Lond.

C.—Dr. W. Carter, Liverpool; Mr. B. W. Cooper, Forest Hall; Mr. M. Cross, Lond.; Mr. J. Clarke, Virginia, co. Cork; Mr. J. Clark, Nagrakata, India; Mr. W. Curtis, Liverpool; Mr. F. E. Cane, Liverpool; Mr. F. H. Perry Coste, Chelsea; Messrs. Colley and Co., Lond.; Messrs. J. and A. Churchill, Lond.; Messrs. Cassell and Co., Lond.; Carriage Insurance Co., Lond.; Church Society for the Promotion of Kindness to Animals, Lond., Secretary of; *Catholic Times*, Lond., Editor of.

D.—Dr. D. R. Dobie, Berwickshire; Mr. R. N. Dawson, Lond.; Mr. A. Deirne, Surrey; Mr. H. A. Dickson, Lond.; Messrs. Douglas and Wooldridge, Stourbridge; Durham College of Medicine, Newcastle-on-Tyne, Secretary of; *Daily Journal* Office, Newcastle-on-Tyne; Doctor, Sittingbourne.

E.—Dr. C. L. Kilaby, Lond.; Mr. Emmerson, Biggleswade; Messrs. Eason and Son, Dublin.

F.—Dr. A. H. Frere, Whitchurch; Messrs. Fracis, Times, and Co., Lond.

G.—Dr. J. W. Greenwood, Hanley; Globe Advertising Co., Aston Clinton.

H.—Sir G. M. Humphry, Cambridge; Dr. E. Hill, Durham; Dr. W. E. Home, H.M.S. *Swallow*, Cape of Good Hope Station; Mr. J. Hutchinson, Lond.; Mr. O. Holst, Eastbourne; Mr. J. H. Haywood, Nottingham; Mr. J. Heywood, Manchester; Mr. Heberden, Weston-super-Mare; Messrs. Hertz and Collingwood, Lond.

I.—Messrs. Ingram and Royle, Lond.; Imperial Live Stock Insurance Association, Lond., Secretary of; Iota Sigma, Lond.

J.—Sir G. Johnson, Lond.; Dr. O. Jennings, Paris; J. F. C., Liverpool.

K.—Prof. Klein, Lond.; Mr. W. Key, Glasgow.

L.—Dr. J. F. Little, Lond.; Mr. H. Lidiard, Carlisle; Mr. W. A. Lane, Lond.; Mr. T. S. Lacey, Royton; Messrs. Sampson Low, Marston, and Co., Lond.; Messrs. E. and S. Livingstone, Edinburgh; Messrs. T. Lewin and Co., Lond.; Messrs. Lee and Martin, Birmingham; Liquor Carnis Co., Aston Clinton; Locum, Cheltenham; Laryngo, Lond.

M.—Dr. C. F. Moore, Dublin; Mr. F. Marsh, Birmingham; Mr. W. J. Mickle, Lond; Mr. J. Moore, Thornton Heath; Mr. F. S. Miles, Sussex; Mr. G. Morris, Winchmore Hill; Messrs. Maple and Co., Lond.; Maltine Manufacturing Co., Lond.; Maldon Rural Sanitary Authority, Chelmsford; M. O. S., Lond.

N.—National Provident Institution, Lond., Manager of.

O.—"Our Dogs," Manchester, Manager of.

P.—Dr. G. C. Purvis, Edinburgh; Mr. R. G. Pullin, Devon; Mr. G. Pollock, Lond; Messrs. Parkins and Gotto, Lond.; Poplar and Stepney Sick Asylum District, Lond.; Peterborough Hospital, Secretary of.

R.—Dr. F. T. Roberts, Lond.; Dr. W. R. Rice, Coventry; Mr. H. F. Russell, Weybridge; Mr. W. J. Robertson, Hackney; Mr. J. M. Rhodes, Manchester; Mr. C. Ricker, St. Petersburg; Royal Veterinary College, Lond.; Rus, Lond.; Ridlands, Lond.

S.—Dr. H. Snow, Lond.; Dr. R. C. Shettle, Reading; Dr. S. Sunderland, Lond.; Mr. M. Summers, Southampton; Mr. D. Steward, Glasgow; Mr. A. M. Sheild, Lond.; Rev. E. Sturges, Wokingham; Mr. H. W. Scriven, Lond.; Mr. W. G. Soper, Caterham Valley; Mrs. Sadler, Lond.; Messrs. Stone and Son, Lond.; Messrs. Street Bros., Lond.; St. Luke's Hospital, Lond., Secretary of; St. John Ambulance Brigade, Lond.; St. Thomas's Hospital Medical School, Lond.; St. Mary's Hospital Medical School, Lond.; St. Thomas's Hospital, Lond., Secretary of; South Devon and East Cornwall Hospital, Plymouth, Secretary of; Swansea Hospital, Secretary of; Subscription News Co., Chicago; Salop, Lond.; Sigma, Lond.

T.—Mr. F. H. Tetley, Bungay; Taunton and Somerset Hospital, Taunton, Secretary of.

U.—University of Aberdeen, Dean of; U. C. H., Rotherham.

V.—Mr. J. W. Vickers, Lond.

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